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General Article

SPINAL (EPIDURAL) ANÆSTHESIA IN THE DOMESTIC ANIMALS

A Review of Our Knowledge at the Present Time

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(*Continued from page* 581.)

Epidural Anæsthesia in the Ox

In the ox two types of anæsthesia are regularly employed; on occasion a third is utilised.

Type 1.—Posterior Anæsthesia: (The so-" Low " anæsthesia of the Continental workers). This is used for the de-sensitisation of the tail, perineum, anus, rectum, vulva, vagina, cervix and uterus (partial). The injection is made through the first intercoccygeal space (A, figs. 6, 7, 8) or the sacro-coccygeal space (B, figs. 6, 7, 8).

The control of the hind limbs is not abolished.

Type 2.—Anterior Anæsthesia: (The so-called " High " anæsthesia of the Continental workers). This is adopted for anæsthesia of the penis and testicles in the male and the udder in the female; also the hind limbs and posterior abdomen. Injections are made at the same sites as for posterior anæthesia, the sacro-coccygeal space being preferable.*

Control of the hind limbs is always abolished.

Type 3.—Lumbo-Sacral Anæsthesia: Used in the young calf and by the Germans for laparotomy in the cow (Cæsarian section). Injections are made through the lumbo-sacral space (C, figs. 6, 7, 8).

Control of the hind limbs is always abolished.

A.—POSTERIOR ANÆSTHESIA

(" Low " Anæsthesia: Anesthésie Epidurale Basse)

The procedure will be discussed as follows:—

1. Regional anatomy and estimation of site.
2. Needles for use.
3. Mode of injection.
4. Failure to enter the epidural space.
5. Unsatisfactory development of anæsthesia.
6. Amounts of solution.
7. The progress of anæsthesia.
8. Duration.
9. Indications.
10. Accidents and complications.

1. Regional Anatomy and Estimation of Site.—The spinal membranes terminate about the mid-sacral region. Behind this level the epidural space therefore occupies the whole of the spinal canal. At the level of the first and second coccygeal vertebræ this canal is of quite small dimensions (figs. 10 and 11). It is triangular in cross section with base ventral and contains nerve trunks running to the tail. The nerves in the adult are about the size of the vagus in a medium-sized dog. The boundaries of the canal as it passes from the first to the second coccygeal vertebræ are as follows (figs. 10 and 11):

(a) *The floor* is formed in front by the posterior part of the dorsal surface of the body of the first coccygeal vertebra, half-way back by the intervetebral joint and cartilages, and behind by the upper surface of the second vertebral body.

(b) *The sides and roof* are formed by the thin elastic inter-arcual ligament.

The first coccygeal spinous process is directed upwards and backwards to overhang the inter-arcual space; the second coccygeal spine is also directed backwards (see figs. 7 and 10).

From figs. 10 and 11 it will be seen that if a needle is to reach the epidural space two facts must be borne in mind.

Firstly, the space is small and there are no bony walls to guide the needle. The latter must therefore be directed exactly in the mid-line.

Secondly, the only indication that the needle has been passed to the requisite depth is that it impinges upon the bony floor of the canal. The needle must therefore be directed along the line X (figs. 10 and 11), *viz.*, inserted at a point two-thirds of the way from G to F (fig. 10) and passed forwards and downwards at an angle of 60° to the horizontal to hit the bony floor of the first coccygeal vertebra.

The location of the site of injection in the living animal is easy. The tail is held in a

*Götze, also Cuillé and Chelle, in differentiating between " High " and " Low " anæsthesia emphasise that injections are to be made through the sacro-coccygeal space for the former and through the first intercoccygeal space for the latter. The writer believes this to be an unnecessary complication because, in practice, injections made at either site act equally well.

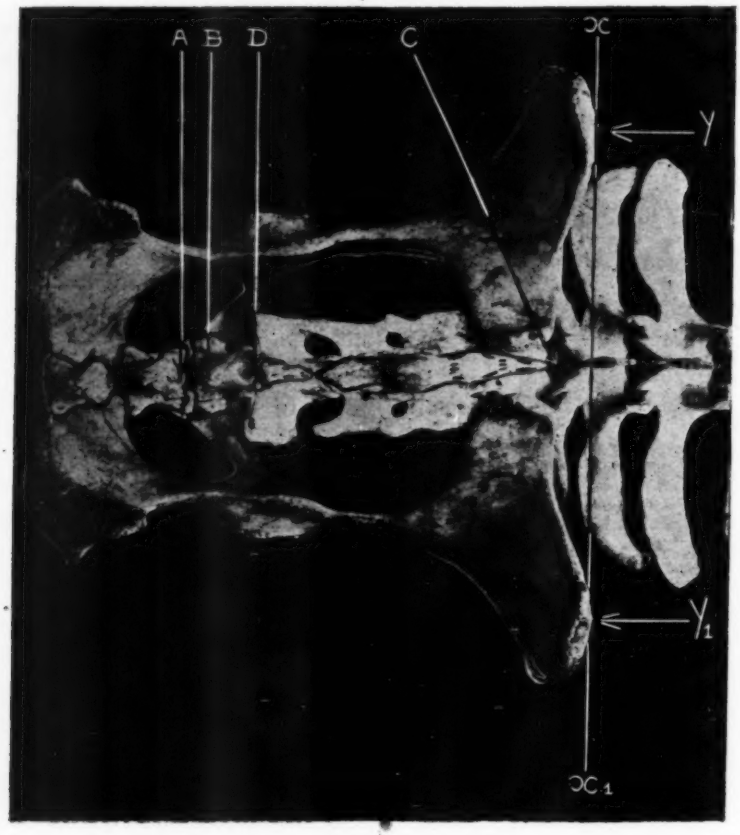

Fig. 6.—Pelvic girdle and posterior part of the spine of the ox (dorsal view).

A = Space between first and second coccygeal vertebræ.

B = Spinous process first coccygeal vertebra.

C = Lumbo - sacral space.

D = Sacro - coccygeal space.

x—x¹ = Line passing through coxal tubers (y and y¹) for location of lumbo-sacral space.

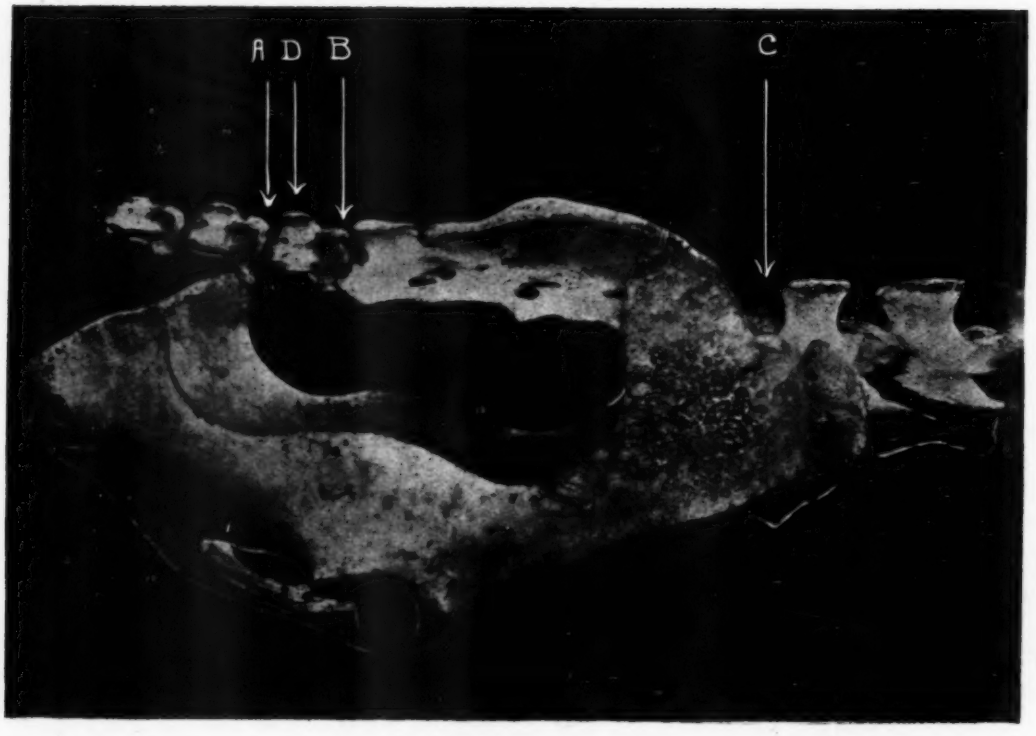

Fig. 7.—Pelvic girdle and posterior part of the spine of the ox (lateral view).

A = Space between first and second coccygeal vertebræ.

B = Sacro - coccygeal space.

C = Lumbo - sacral space.

D = Spinous process first coccygeal vertebra. (Compare fig. 6.)

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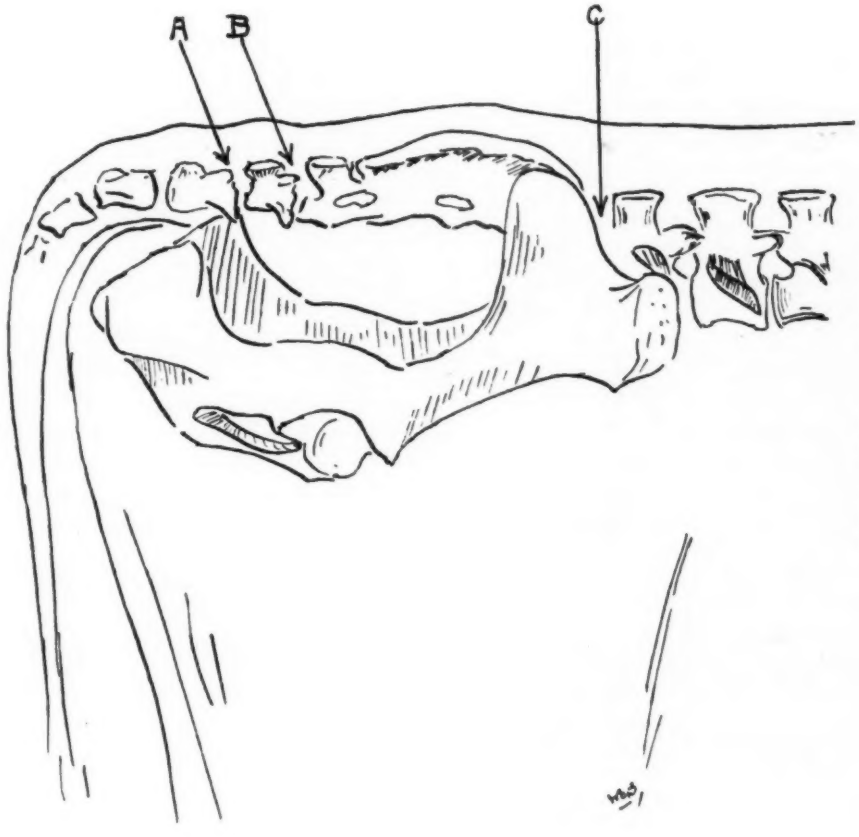

Fig. 8. — Pelvis and posterior spine in relation to the contour of the animal (cf. figs. 6 and 7).

A and B = Sites of puncture for posterior or anterior anæsthesia (see text).

C=Site of injection for sacro - lumbar anæsthesia (see text).

Fig. 9.—Position of Operator during insertion of the Needle.

horizontal position in alignment with the mid-dorsal line of the body (fig. 9), and moved up and down after the fashion of a pump handle. The sacro-coccygeal junction (E, fig. 7) is situated at the level at which tail movement ceases; immediately behind this is a laterally-compressed bony ridge representing the summit of the first coccygeal spine (D, figs. 6, 7, and F, fig. 10), posterior to which is a definite depression, 2 to 4 cms. in extent, which is the space between F and G (fig. 10). It is through this space that the injection is made. With practice, especially in the lean subject, the depression can be defined at a glance.

2. Needles: The Bovine Coccygeal Epidural Needle, depicted in figs. 12A and 12B, has the following measurements: (*a*) overall length 10 cm.; (*b*) length of needle, 8 cm.; (*c*) external diameter, 1·27 mm.; (*d*) internal diameter, 0·736 mm. The point must not be too long but at the same time sharp enough easily to pierce the tough skin. The needle is graduated in centimetres from the tip. A stilette is fitted which locks itself by means of a projection received into the head of the needle. A graduated syringe of 10 or 20 cubic centimetre capacity is used for the injection. Needles and syringe should be carried in spirit cases (see fig. 16).

[Some practitioners use a strong hypodermic needle instead of the special spinal needle. The writer has used both and finds that the hypodermic needle possesses three disadvantages. Firstly, it is not provided with a closely fitting stilette and occasionally becomes blocked with fragments of tissue during insertion. Secondly, it must usually be attached to a syringe during insertion, being too short to grasp firmly between the fingers. Some restive patient eventually displaces and breaks the syringe—an expensive economy, and highly inconvenient if a spare syringe is not available. Thirdly, it is not suitable for other work whereas the spinal needle will serve for epidural injections in the dog and sheep and horse.

The spirit case designed by the writer carries four needles. The detachable top can be fitted to the bottom—to act as a heavy base and keep the case upright when in use (fig. 16.)

3. Mode of Injection: The animal is usually operated on in the standing position but under certain circumstances may be recumbent. In either case an assistant controls the animal's head by grasping the nose. A second assistant holds the tail horizontally and in alignment with the sacrum. The site of puncture is estimated as described above, the hair clipped and the skin cleansed with spirit. The operator stands on the left of the animal at the level of the root of the tail with the sterilised needle in the right hand. The left hand defines the site of operation and the needle is thrust

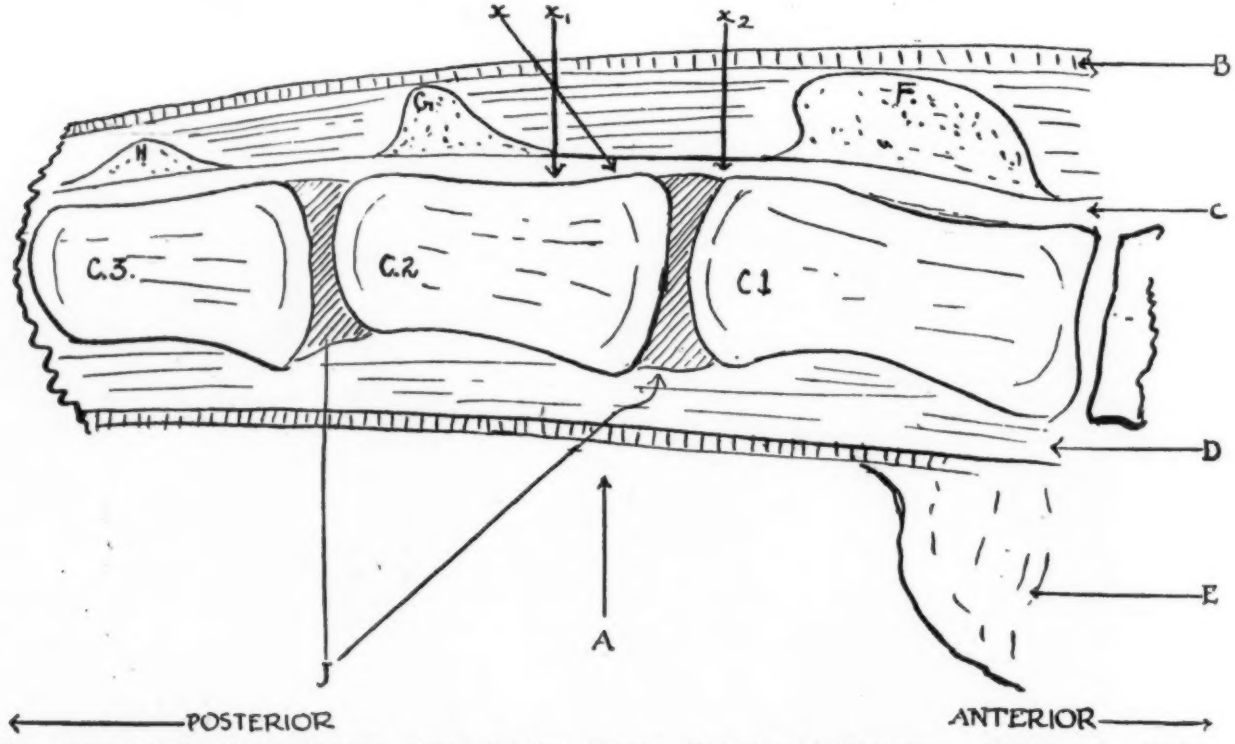

Fig. 10.—Longitudinal Section through first Three Coccygeal Vertebræ. (Drawn to Scale.)

B=Skin.
C=Spinal Canal.
D=Ventral Musculature.
E=Ischial Fat.
F=Spine of First Coccygeal Vertebra.
G=Ditto of Second Coccygeal Vertebra.
H=Ditto of Third Coccygeal Vertebra.
J=Inter-vertebral Cartilages.
C_1, C_2, C_3, Bodies of first three Coccygeal Vv.

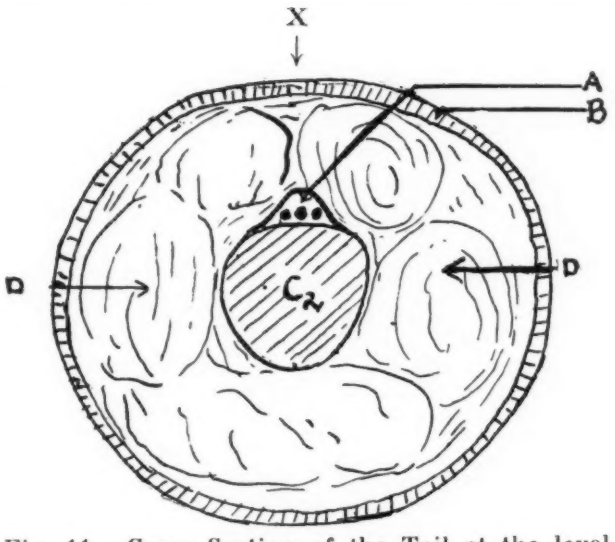

Fig. 11.—Cross Section of the Tail at the level of the first inter-coccygeal space.
A = Epidural Space; containing nerve trunks. (Height about 0·2 inch.)
B = Skin.
D = Musculature.
C_2 = Body of second coccygeal vertebra.
X = Plane along which needle must pass to reach space A.

Fig. 12.—Needle drawn to scale. Total length. 10-12 cms.

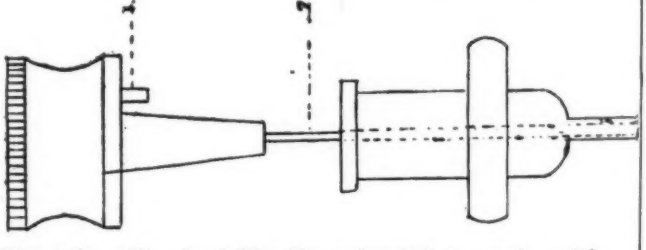

Fig. 12A.—Head of Needle enlarged to scale with stilette partially withdrawn. (1) = Stilette lock-catch; (2) = Stilette.

through the skin (fig. 9). This procedure is not very painful but the skin is resistant and a sharp needle therefore advantageous. The slight mobility of the skin permits the operator to move the needle, if necessary, to the precise plane along which it must be passed. The needle is then pushed steadily along the route previously described, "sighting" being carried out to maintain a mid-line position. Bone is encountered at a depth of from two to four centimetres according to the size and condition of the animal. The stilette is thereupon withdrawn,* the syringe attached and an injection attempted. If the epidural space has been entered, introduction of fluid is extremely easy and resistance practically absent. With the needle in any other position expulsion of the fluid from the syringe is quite difficult.

4. Failure to Enter the Epidural Space: (*a*) The top of the needle may bury itself in the soft tissues overlying the bone. This can be corrected by slightly withdrawing the needle and revolving it through half a turn.

(*b*) The needle may not be precisely in the mid-line or the tail in true alignment. The appropriate correction should be made. This occurs especially in the young or nervous animal which, being more sensitive to the prick of a needle, struggles or twitches the base of the tail.

(*c*) The bone impinged upon may be one or other of the coccygeal vertebral arches. These are usually encountered at a depth of less than two centimetres. The obvious correction should be made (fig. 15).

(*d*) In the recumbent subject, in those patients which have a deposit of fat about the base of the tail and in animals which are "straining" violently during the operation, difficulty in locating the epidural space is not infrequent. In such instances it will be found easier to make the injection through the sacro-coccygeal space.

(*e*) In the young calf, owing to the smallness of the structures, it is easier to make the injection through the lumbo-sacral inter-arcual space using the same Bovine Coccygeal Epidural needle (see later).

(*f*) In some animals it has been found impossible to effect a successful injection. This has been mentioned by Lagerlöf,[53] Frank and McLeod[13] and Brook.[17] It is probably due, as Cuillé and Chelle affirm, to a faulty technique. In the past six years, during which the writer has used the method, several such instances have occurred.

Table I.

Posterior Anæsthesia

The maximum dose which may be injected without affecting the control of the hind limbs.

Type of Animal	Length (occiput to L-S junction)	Amount (c.c.)
	c.m.	
Small Shorthorn (heifer, etc.)	140	12
Medium Shorthorn (cow, etc)... ...	155	14
Large Shorthorn (cow, bull)	170	17

5. The Amount of Solution to be Injected: It is assumed that when so-called posterior anæsthesia is being used, the extent of anæsthesia desired is such that the nerve supply to the hind limbs is unaffected and the animal can, if the operator so desires, remain in the

* When the stilette is withdrawn air may be heard rushing into the space through the needle. This is not always detected but when observed it is an infallible sign that the puncture has been correctly performed.

standing position. This is, in fact, the great advantage of posterior anæsthesia over anterior anæsthesia, but at the same time the field of application is proportionately limited. Table I is a guide to the maximum amount of solution which may be injected into three sizes of adult shorthorn cattle without affecting the power of the hind limbs. The length of the spine from the occipital region to the lumbo-sacral junction has been used as a standard for comparison. A shorthorn heifer of average size measures 138 centimetres, a cow of medium size 155 centimetres and a large cow or bull 170 centimetres or over. Table 2 indicates the dose necessary to block the nerves to specified areas or organs.

TABLE II.

Posterior Anæsthesia. Amounts of Solution for Anæsthetisation of Different Areas.

Areas to be Anæsthetised		Tail	Tail, Perineum, Vulva, Anus	Tail, Perineum, Vulva, Anus, Rectum, Vagina, Cervix, Uterus (partial)	Tail, Perineum, Vulva, Anus, Rectum, Vagina, Cervix, Uterus (partial)
Operations which can be undertaken		Amputation	Removal Placenta ; Pelvic Urethrotomy	**Obstetrical Manipulations ; Uterine Eversion**	Embryotomy, Ovariotomy
Type of Patient	Small Shorthorn (heifer) 140 cm.	5	9	11	12
	Medium Shorthorn (cow) 155 cm.	6	10	12	14
	Large Shorthorn 170 cm.	7	10	13	17

6. The Progress of Anæsthesia: This can be best observed after the injection of doses set out in Table 1. Loss of sensation commences almost immediately at the tip of the tail, advances to the root and then spreads to the perineum. The almost immediate flaccidity of the tail is the first criterion of a successful injection. Anæsthesia reaches a maximum after about 20 minutes when, from illustrations by German and French workers, the area of skin desensitised extends upwards and forwards to the middle of the sacral spine and downwards over the perineum and inner aspect of the thighs. In the male it extends forward to the end of the prepuce and includes the skin of the scrotum. (Note the testicles and penis are not anæsthetised.) In the female the udder remains sensitive except for its posterior surface. The sphincters are paralysed and the anus and vulva relaxed. The vagina and rectum are insensitive and ballooned. The nerve supply to the cervix, bladder and pelvic urethra is blocked. The uterus is not usually affected: its power of contractility remains unimpaired (Götze). In a few patients the writer has noticed tremors of the shoulder and neck muscles a few minutes after the injection.

7. The Duration of Anæsthesia: The action of "Parsetic" (Parcaine) or "Waite's" solution lasts for about one hour; Cuillé and Chelle's bicarbonate solution is stated to persist for two-and-a-half to three hours, but the writer has been unable to confirm this. Injections may be repeated without harm. In certain cases several successive injections into the same animal have been made by the writer on the same day, without untoward results.

8. Unsatisfactory Development of Anæsthesia: Cuillé and Chelle[60] draw attention to those cases in which the solution is injected into the epidural space but anæsthesia is incomplete, asymmetrical or fails to develop. These phenomena may be related to the use of a solution of diminished potency, to the presence of certain anatomical peculiarities such as unusually patent inter-vertebral foramina and septæ in the epidural space, or to the deflection of the solution by the coccygeal ligament of the spinal cord. All these factors have been discussed previously (see Part 1). It has been mentioned that, to obviate leakage through the puncture hole, the needle should be left in position for a few minutes after the injection and the tail held a little higher than the horizontal.

9. Indications for the Use of Posterior Anæsthesia: (a) *Dystokia.*—Posterior anæsthesia is useful in cases of dystokia. "Straining" is abolished as soon as the vulva and vagina are anæsthetised but the uterus remains unaffected with the dose indicated in Table 2. Fœtal manipulations are greatly facilitated but the uterine contractions remain as an aid to final delivery.* In cases where manipulation or embryotomy is necessary, especially if an embryotome is to be used, the full doses indicated in Table 1 must be given, when the uterus will usually be affected and become more or less dilated. This depends upon the blocking of the first two pairs of sacral nerves. In

* Götze published his observations on uterine contraction in the bovine (?) under epidural anæsthesia. A translated abstract of this work was made by Edwards[74].

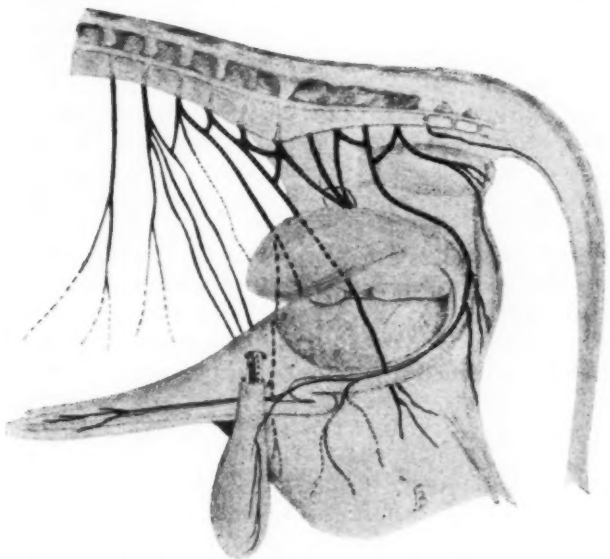

Fig. 13.—The Distribution of the Lumbo-sacral Nerves in the Bull (Schematic).
Posterior anæsthesia blocks the nerves as far forward as the Sciatic which can be seen disappearing over the bladder. Anterior anæsthesia involves nerves anterior to the Sciatic. Only extensive anterior anæsthesia will desensitise the testicle.

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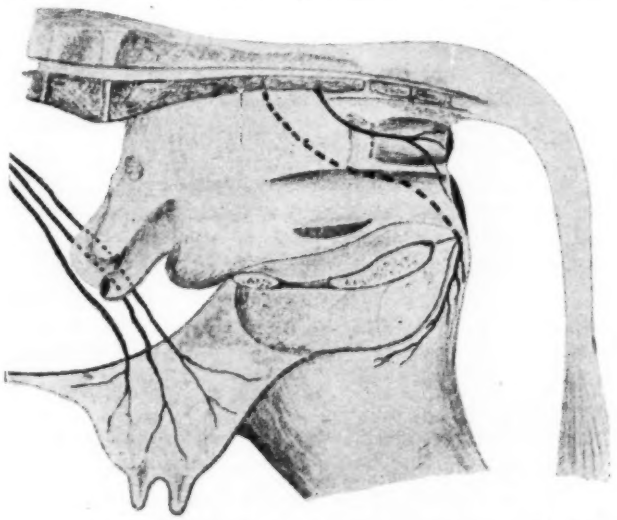

Fig. 14.—Schematic representation of the innervation of the udder and external genitalia of the cow.

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posterior anæsthesias the patient can, and usually will, continue to stand and this is very helpful in obstetrical work. Other associated advantages of its use in parturition cases are prevention of pain and abolition of the passage of fæces which, occurring during the straining, renders it so difficult to practise surgical cleanliness during delivery.

(b) *Everted Uterus.*—In the replacement of an everted uterus posterior anæsthesia is of considerable use. With the cessation of straining the organ slips into place quite readily and commences to contract in position. The engorgement of the parts subsides and the relief from pain lessens the chance of secondary eversion. It is important not to block the nerve supply of the uterus proper and thus doses of 11, 12 and 13 c.c. respectively for the three types should not be exceeded (Table 2). If the uterine nerves are blocked, the organ, after replacement, remains in a semi-ballooned state and partial eversion can recur unsuspected, the blind ends of the uterus tending to reinvaginate themselves into the cavity of the womb. This condition, if allowed to persist, leads to complications such as adhesions and local necrosis; the writer experienced such a case necessitating ultimate destruction. Accordingly, after returning the womb every care should be taken to ensure that the uterine culs-de-sac are completely replaced* and that the muscular walls are contracting to obliterate the potential cavity. If a too extensive anæsthesia has interfered with this a second examination should be made a few hours later to ensure that the positions are as desired.

Despite the use of epidural anæsthesia it is advisable whenever possible to arrange the patient so that the hind quarters are higher than its fore-end. This, in any case, is a great natural aid to replacement, particularly if intestine has been forced within the eversion. After replacement the vulva should be temporarily closed (sutures, clam or other method) as a safety measure. In this connecton, Lang (private communication) describes an interesting case. His patient received chloral *per os* and several c.c. of "chlorocain" epidurally. The animal became recumbent (chloral narcosis?) and the uterus was returned easily and quickly. Shortly afterwards when the cow coughed the whole organ again underwent eversion. The more extensive anæsthesia that accompanies the use of chlorocain (see Part II) may have been responsible for this accident, but vulval suture would doubtless have prevented it.

(c) *Ovariotomy.*—Posterior anæsthesia is ideal for this operation. The animal remains standing, the maximum doses shown in Tables 1 and 2 being used. The insensitive, tensely distended vagina is readily irrigated, cleansed,

* Practitioners employ various methods to ensure complete replacement. The writer is indebted to one veterinarian for advising the use of a sterilised whisky or similar bottle. After the uterus has been replaced the bottle is carried, blunt end forwards, into the womb. Introduced gently into the blind ends of each horn it forces these successfully into position.

and incised, the nerve supply to the ovaries is not cut off and hence pain is evinced during their actual removal but is certainly not severe; the patient shows little more than uneasiness. The vaginal incision can be closed with sutures quite readily.

(d) *Surgical interventions* can be carried out upon the cervix uteri, vagina, rectum, vulva, anus, perineum, urethra and tail, including operations upon tumours of the cervix, vaginal polyps, vulval enlargements, anal fistulæ and prolapses of the rectum. Irrigation of the bladder in cystitis may be practised without pain or reaction. The dosage for these various operations is indicated in Table 2.

(e) *In selected cases of retained placenta,* removal can be carried out more expeditiously and with less discomfort to the patient and operator. Expulsive efforts are reduced, the patient's strength conserved and a more complete removal ensured. A small dose of about 10 c.c. should be used so that uterine tone is not interfered with and irrigating fluids do not lie stagnant in the womb. It is not, of course, suggested that all cases of retained placenta be treated under spinal anæsthesia. The few instances in which the writer has used it are those in which the patient is small and ill-nourished and her condition and resistance low, with toxæmia possibly present; in such circumstances the complete and painless removal of the material with the least disturbance to the patient is an undoubted aid towards recovery.

(f) *Albrechtsen's iodine irrigation* treatment for uterine catarrh can be undertaken with greater ease and safety, using a dose of about 10 c.c. of anæsthetic. Expulsive efforts, which have occasionally caused the catheter to perforate the cervix or uterus, are obviated.

In connection with this treatment rectal palpation and manipulation must be carried out *before* anæsthesia. The dilatation of the rectum under epidural "block" renders subsequent palpation impossible.

(g) *Attacks of Post-partum "Straining"* that occasionally occur and are so often serious can be allayed with posterior anæsthesia. This tides over the danger period of progressive congestion of the pelvic and vulval tissues or of possible uterine eversion.

(h) *Post-partum hæmorrhage* may be controlled and ruptured vessels tied off more easily if a small injection of 10 to 12 c.c. be given to anæsthetise the vagina and vulva.

10. Accidents and Complications Associated with Posterior Anæsthesia: (*a*) Breakage of the needle *in situ* may occur if the patient moves suddenly during the operation. Thus the animal should be well under control at the time of injection and in the case of the nervous animal the site of operation should be anæsthetised with local anæsthetic.

(*b*) Cuillé and Chelle refer to a German analysis of the cause of ten deaths during 4,200 *epidural* injections in the *human.* When death was related to the actual injection it was shown that the solution had either reached the subarachnoid space by puncture of the cul-de-sac and so led to bulbar paralysis, or had been injected into a vein and brought about intoxication. It is unlikely that a subarachnoid injection could be made inadvertently in the ox, since the dural cul-de-sac terminates, according to Cuillé and Chelle,[60] half way back along the sacrum and is therefore well in front of the needle during posterior or anterior anæsthesia. Again, the dose of drug used in posterior anæsthesia, even if injected intravenously, is well within the lethal margin.

(*c*) Accidents can conceivably occur if during a too-extensive posterior anæsthesia—and, of course, much more so during anterior anæsthesia—the patient falls heavily or slips during the period when incoördination of the hind limbs is present. If such is expected to occur, attendants should watch the patient during the onset and termination of the anæsthesia and the operation should only be carried out in a suitable building.

(*d*) The writer considers that lacerations of the vagina or vulva occur more readily and tend to be more extensive when epidural anæsthesia is used during parturition. The natural contractility and elasticity of the muscles are abolished and the inert tissues would appear to rupture more readily. Moreover, hæmorrhage from these injuries is more profuse. The vessels are no longer invested with elastic tissue but are left protruding in a flaccid wound. On the contrary, bleeding points are more easily picked up when anæsthesia is operative. This tendency to rupture does not seriously outweigh the advantages of this anæsthesia but rather constitutes an indication for the more careful conduct of the case and the frequent use of lubricants.

(*e*) Interference with the "carriage" of the tail. Cuillé and Chelle[60] mention that after novocaine injections the tail is sometimes carried in a twisted manner but its mobility is normal; the condition disappears after five or six days and is ascribed to trauma of a coccygeal nerve during puncture. The writer has experienced a more serious complication. Posterior anæsthesia was induced in an adult shorthorn during the extraction of a dead and œdematous fœtus. The injection was made in the usual manner, using "Parsetic." Since the operation, 24 months ago, the animal has been unable to elevate the tail even during defæcation or urination. Lateral movements are possible but are not sufficient to prevent excoriation of the lower tail and the perineum. During the interval a hard enlargement has appeared over the

region of the first coccygeal spine. It is diffuse and slightly painful to palpation. If an attempt is made passively to elevate the tail considerable pain is evinced. The milk yield and general condition of the animal have not been affected. The nature of the changes is not clear from an ordinary clinical examination but considerable and apparently permanent disability of the tail is certainly present.*

(*f*) The possibility of partial recurrence of uterine eversion has been discussed. Its avoidance is essentially a matter of correct calculation of the dosage.

Dehecq[71] is one of the few who have recorded undesirable sequelæ to the use of epidural anæsthesia so that it is proposed to review his article in some detail. He affirms that whilst a dose of anæsthetic will produce satisfactory anæsthesia in one animal the same dose in another may bring in its train alarming complications. He cites two cases. Two Friesian cows similar in weight, age and condition received 10 c.c. of 2 per cent. adrenalinised novocaine during parturition. Delivery was accomplished easily. One patient recovered normally. In the other anæsthesia persisted for 48 hours with incoördination and tetanic spasms of the left hind "quarter." The animal became prostrate and was relieved by subcutaneous administration of 2 grammes caffeine and 20 grammes of uroformine. Dehecq may be correct in ascribing the complication to the anæsthetic and/or the method employed, but we feel that if a blood-calcium estimation and an acetone test of the urine had been carried out with negative results his criticisms would have been more reliable.

Dehecq then postulates that the toxic action of the anæsthetic when in contact with the dura mater sets up an inflammatory reaction. If this is severe enough the "meningeal barrier" between the blood and the central nervous system breaks down. He records the following case as an example of this.

Subject, an eight-year-old Flemish cow, on the verge of abortion following foot-and-mouth disease; general condition good, but had had purulent discharge for two to three days.

Expulsive efforts moderated on the morning of examination. Cervix closed, 10 c.c. adrenalinised novocaine given epidurally. Unsuccessful attempt at cervical dilatation; warm douches until following evening, when 15 c.c. adrenalinised novocaine were given; manual dilatation; seven months fœtus delivered—macerated; fœtid discharge, but patient appeared normal for five to six days. At this stage rumination ceased; prostration; fœtid diarrhœa; paraplegia and dorso-lumbar sensibility abolished. Temperature 39 to 39·5. Death of ninth day. Dehecq concludes that although this was, on the evidence, a post-partum septicæmia, it appears indubitable that this animal presented a meningeal reaction due to the irritant action of two successive epidural injections. We cannot agree with Dehecq's conclusions because he omitted to carry out (*a*) an examination of the cerebro-spinal fluid; (*b*) microscopic examination of the nerve roots and meninges. In the original article no actual mention of any *post-mortem* examination is made, so that whilst admitting the possibility of a breakdown of the "meningeal barrier" with fatal results in the presence of abortion and foot-and-mouth disease, we feel that Dehecq has failed satisfactorily to prove his contention in the single case described.

Contra-indications.—Anæsthesia should not be induced when fractures of the pelvis or neighbouring bones exist. The abolition of muscular support may lead to considerable displacement. Epidural puncture should not be carried out near a septic focus of any type. Examinations involving palpation *per rectum* cannot be carried out under epidural anæsthesia. Dehecq[71] remarks that because the anæsthetic is "neutralised" by the liver and eliminated by the kidneys the method ought not to be employed when serious disease of these organs exists.

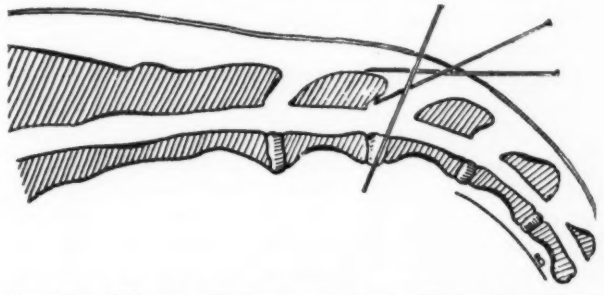


Fig. 15.—Wrong Positions of the Needle during Attempt to Puncture the Epidural Space between the first and second coccygeal vertebræ.
Reproduced, by permission of Drs. Cuillé and Chelle, and of the publishers, from Rev. Gén. de Méd. Vét.

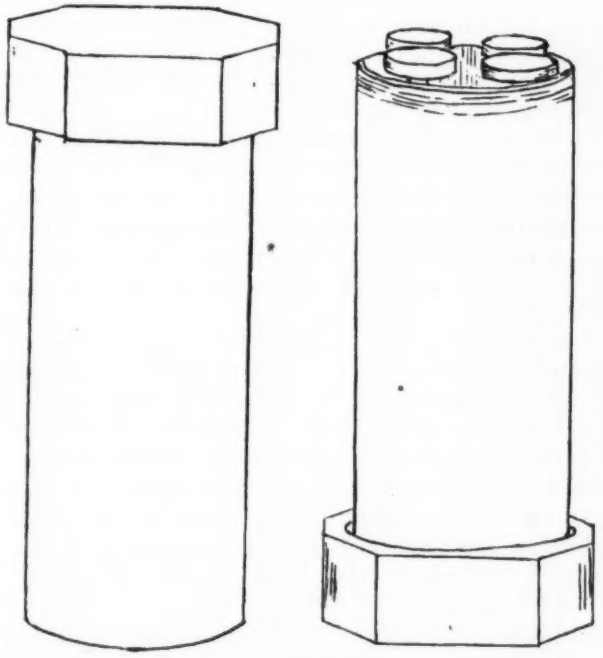


Fig. 16.—Spirit Case for Carrying the Needles.
The figure shows how the cap can be utilised as a base in which to place the case when in use.

* The writer has this cow under observation. When she is passed out of the herd for disposal it is hoped to obtain parts for dissection and microscopical examination.

B.—ANTERIOR ANÆSTHESIA

("High" Anæsthesia; Anesthésie Epidurale Haute)

Anterior epidural anæsthesia involves the whole of the posterior regions of the body: the hind limbs, croup, inguinal region and posterior abdomen with testicles and penis. The animal inevitably becomes recumbent because the control of the hind limbs is abolished.

The injection is usually made through the sacro-coccygeal space, the surface relations of which have been previously noted (B, figs. 6, 7, 8); a Bovine Coccygeal Epidural needle is passed in the usual manner but to the slightly greater depth of about 5 cm. It has been recommended that the patient stand with the hind quarters elevated and that the tail be kept horizontal for some time to encourage the solution to migrate forwards.

The progress of anæsthesia is at first precisely similar to that in posterior anæsthesia, but later proceeds to affect the hind limbs, the muscles of the croup and thighs showing tremor. After about 20 minutes the animal can no longer stand and at this stage care should be taken to control the patient and avoid injury through slipping or falling heavily; when recumbency is assumed the hind limbs should be pulled into a comfortable posture. If the animal is left in one position anæsthesia develops asymmetrically, being more extensive along the lower side of the body. Ideally, therefore, the animal should be placed on the back and maintained there for some time until the solution has become fixed. If this is not practicable it should be turned on to the opposite side ten minutes after recumbency. The zone of insensibility meanwhile spreads (according to the dose) over the flank, the inguinal region, mammary gland or testicles, and the abdominal wall as far forward as the umbilicus, occasionally extending to the level of the costal arch. The ovaries and whole of the uterus are involved and contractions of the latter abolished. Anæsthesia, usually complete in 30 to 35 minutes, will persist for nearly three hours.

Indications for Anterior Anæsthesia: Anterior anæsthesia is indicated in examination of and operations upon the penis; also operations on the hind limbs (resection of digit), ablation of the udder, operations against scrotal and ventral herniæ and in laparotomy. It has been used for Cæsarean section in the cow (Götze). In general it can be employed for operations behind the level of the umbilicus with the patient recumbent.

Dosage.—Table 3 will act as a general guide. More allowance must be made for a large patient in the case of anterior than posterior anæsthesia:—

Table 3.

Anterior Anæsthesia

Organ.	*Dose.*
Penis	See Special Paragraph.
Udder (total)	Up to 60 c.c.
Hind Limbs	Up to 80 c.c.
Posterior Abdomen ...	80-150 c.c.*

* French workers regard 150 c.c. as a safe maximum but recommend the use of weaker solutions (*e.g.*, 1 per cent. novocaine).

Examination of and operations upon the Penis under Anterior Epidural Anæsthesia.

Benesch, Lagerlöf, Stinson, Götze, Forssell, Goffinet and Duhaut, have reported favourably on the use of epidural block for the extrusion and examination of the penis.

From the publications mentioned and from personal experience of the method the following recommendations are made:—

Dosage.—Small bull, 25 c.c.; medium, 50 c.c.; large, 70 c.c.

Anæsthesia.—Anæsthesia is complete after about 30 minutes. The penis is usually extruded before the power of the hind limbs is completely abolished (Stinson), a fact which is to be expected from the study of the nerve distribution (fig. 13).

To prevent injury to the extruded penis when recumbency occurs, Stinson suggests the application of a suspensory wrap. This is easily done by stitching a length of sacking around the bull's body to include the prepuce before injection. The same precaution must be adopted during the period of recovery.

When a powerful adult bull is to be operated on, it is wise to cast the patient with hobbles before paralysis of the hind quarters supervenes. A bull objects to the sensation of paralysis more than a cow and might injure himself seriously if a struggle ensued.

Howe (private communication) recommends that an initial minimum dose be given to the standing patient and the needle left in position. After the lapse of some time if extrusion does not occur additional doses of 2 to 3 c.c. are given until an anæsthesia of the desired extent is obtained. Howe claimed that by this method the patient usually remains standing. From fig. 13 it will be seen that this should be possible with carefully graded doses because the nerve supply to the penis leaves the spinal canal at a more posterior level than that to the hind limbs.

Complications.—The extensive nerve block that obtains in anterior anæsthesia introduces the possibility of those complications previously discussed under "phenomena accompanying anæsthesia." The farther beyond the first lumbar vertebra the solution percolates the greater

the fall in blood pressure should be. Respiratory depression and slowing of the heart may follow with, in extreme instances, diaphragmatic paralysis. The mechanism of all these sequelæ has been discussed. A fall in blood pressure should be anticipated with a previous intra-muscular injection of 1/1,000 adrenalin solution and if serious treated with intravenous injection of adrenalin-saline solution.

Effect of Epidural Anæsthesia on the Expulsion of Fœtal Membranes.—This may be studied after the administration of a dose of anæsthetic solution sufficient to block the nerves to the uterus; as, for example, a medium dose for anterior anæsthesia. In a large shorthorn cow an injection of 40 c.c. would suffice. It would then be observed that expulsion of the fœtal membranes occurs quite regularly some two to two-and-a-half hours after the injection, the patient probably recovering the power of the limbs about half-an-hour later. In the instances upon which the writer has had the opportunity of making observation, no interference with the expulsion of the membranes has occurred.

C.—LUMBO-SACRAL ANÆSTHESIA

In lumbo-sacral anæsthesia epidural injection of anæsthetising solutions is made through the lumbo-sacral interarcual space (C, figs. 6, 7, 8).

1. Estimation of Site: Locate the upper anterior prominence of the ilium coxal tuber (Y, Y^1, fig. 6) of each side, and join them with an imaginary transverse line (X^1, X^2, fig. 6); immediately behind the point at which this intersects the mid-line a depression (C, figs. 7 and 8) will be palpable representing the space between the last lumbar spine and the anterior limit of the sacral spine. It is into the centre of this depression or one inch to either side that the needle is passed.

2. Needles: In the calf from birth up to about two months of age the standard Bovine Coccygeal Epidural needle (see above) is satisfactory.

For adult animals a Bovine Lumbar Epidural needle should be used. This has the following specifications.

Length of needle	...	16 c.m.
External diameter	...	2·05 m.m.
Internal diameter	...	1·65 m.m.

It is constructed on the same principle as the Coccygeal Epidural needle.

3. Procedure.—The technique varies according as the subject is a young calf or adult.

(a) *Calf.*—The operation may be conducted with the subject standing or held upon its side. In the latter case the animal is placed on its left side with the head to the left hand, the operator standing to face the lumbar region of the patient. The lumbo-sacral depression is located as above and, after the usual preparation, the needle is inserted in the mid-line in the centre of the depression and passed in at right angles to the skin surface. At a depth of 4 to 6 cm. resistance ceases and the sensation of entering a space is imparted to the hand of the operator. This signalises the perforation of the interarcuate ligament. The stilette should then be withdrawn. If no cerebro-spinal fluid escapes from the needle—an eventuality which should be particularly watched for—an empty glass syringe should be attached and slight aspiration attempted. If no fluid of the nature of cerebro-spinal fluid enters the syringe it may be assumed that the needle has not entered the subarachnoid space and an injection of anæsthetising solution may be tried. Here as in other situations the ejection of fluid from the syringe into the epidural space is easy; it should be borne in mind that injection into the nearly related subarachnoid space is equally easy and hence until the above tests for the absence of cerebro-spinal fluid have been carried out no injection of drug should be made. If the needle is resting outside the epidural space injections of fluid require considerable pressure.

1. Amounts of Solutions to be Used: In the calf the dosage varies for the field of anæsthesia desired. The writer's experience has been limited to operations for imperforate anus and scrotal hernia. Five to six c.c. gave satisfactory anæsthesia for the former and ten to 12 c.c. for the latter. In each case the development of anæsthesia took about ten minutes and the control of the hind limbs was abolished for one hour.

2. Complications: (*a*) The appearance of the cerebro-spinal fluid. The dural cul-de-sac extends to the level of a transverse plane half way along the sacrum (Cuillé and Chelle[60]) and so the possibiilty of the needle piercing the dura and arachnoid and entering the subarachnoid space is always present (fig. 1, Part I). This is signalised by the appearance of cerebro-spinal fluid spurting from the needle or at least entering a syringe on aspiration. The author has experienced this once during six such punctures in the calf when about 20 c.c. of the clear limpid fluid escaped from the needle. The obvious correction of slightly withdrawing the needle should be tried. If after the flow of cerebro-spinal fluid has ceased injection of fluids is unresisted, then an epidural injection has been accomplished. Avoidance lies in not pushing the needle after perforating the interarcuate ligament. It is undesirable to inject anæsthetising solutions into the subarachnoid space, not because it is dangerous *per se*, but because special measures must be taken to control diffusion of the drug into the c.s.f. Unless the specific gravity of the solution is suitable and in addition the position of the

patient can be controlled with reference to the slope of the spine, the regulation of the movements of the solution is not possible. In the procedure under discussion in cattle neither of the control factors is available and hence the injection of a quantity of drug into the cerebro-spinal fluid might prove fatal.

(*b*) Injury to the nerve roots of the cauda equina may occur if the needle, after piercing the interarcuate ligament, is pushed downwards as far as the floor of the bony canal.

3. Indications: (a) *In the calf* this method may be used as an alternative to the sacro-coccygeal or inter-coccygeal injections, which are not easy to perform in the small animal. It may accordingly be adopted for operations on the corresponding areas previously dealt with but is naturally not often demanded in clinical work.

(b) *In Adult Cattle.*—Lumbo-sacral epidural injections are usually carried out with the animal in the standing position. The subject is controlled in the usual manner and after estimation of the site the skin surface is prepared and local anæsthetic injected subcutaneously and along the estimated track of the needle. Puncture is then performed using the Bovine Lumbar Epidural needle; the latter, however, should be introduced a little to either side of the mid-line to avoid the resistant supra- and inter-spinous ligaments. The needle is accordingly directed a little towards the mid-line which should be reached as the interarcuate ligament is punctured. This occurs in the average-sized subject at a depth of about 9 cm. Precautions, similar to those adopted in the calf, should be taken with reference to subarachnoid puncture and nerve trauma.

The amounts of solution injected at this site vary widely according to the effects desired, but since this route is used as a supplementary method of injection in Anterior (High) Anæsthesia, the amount injected here should be roughly two-thirds of the quantity which would be used through the sacro-coccygeal space.' The advantages of lumbo-sacral anæsthesia in the adult are, therefore, an economy in solution used and an earlier development of anæsthesia.

References.—A complete list of references will appear at the end of the concluding portion of this paper.

(*To be continued.*)

SUPERVISION OF PASTEURISING PLANTS

The Ministry of Health has published a report, which will be reviewed in our columns at an early date, on "The Supervision of Milk Pasteurising Plants." The author is Sir Weldon Dalrymple-Champneys and his report is "designed to give, in concise form, the information needed by local authorities in dealing with pasteurising plants, many of those now in use being imperfect in design and construction or badly operated."

Clinical Communication*

PATHOLOGICAL EXHIBITS

Professor G. H. WOOLDRIDGE, f.r.c.v.s.
Royal Veterinary College

I have several morbid specimens to show; I do not think they will give rise to any discussion at all, but they may be of some interest.

Stones in the Bowel: Enterotomy twice in 18 days.—The first case to which I wish to refer is a 14-months-old red setter bitch that was brought into the College on April 11th,—that is, just three weeks ago. She had been vomiting persistently and on palpation of the abdominal cavity a fairly large stone could be felt. She was operated upon under ½ grain morphia as a preliminary followed by chloroform, and quite a large flint was removed. She did very well.

It was interesting to note that about 1 ft. or 18 inches of the bowel was very deeply congested and there was difficulty in getting sutures to remain in position. As stated, however, she did well and was sent home at the end of a fortnight, fit, feeding and full of high spirits. She was brought back to the College again on the 29th, 18 days after the first admission, and again she was vomiting. On this occasion it was suspected that there might have been either a stricture at the site of the primary operation or some infection from a suture abscess. Palpation of the abdominal cavity revealed nothing. As a stricture was suspected, it was decided to give her a barium feed and have an X-ray taken. You remember that as an obstruction was felt in the first instance, there was no X-ray taken on that occasion. After the barium meal another big stone was revealed in the intestine, but unfortunately, since the barium had been administered, it was not possible to see anything in the stomach. Operation was decided upon again. The incision was made further forward than the primary one, firstly because there was a secondary suture abscess complicating the primary wound, and secondly because it gave a better position for examination of the stomach. This stone (exhibited and about the size of a hen's egg split horizontally) was removed from the intestine. The bowel on this occasion was very little congested indeed and it is remarkable that such a big stone should pass so far down the bowel without causing any serious trouble. The first stone was rather larger than that one, and when we examined the bowel through which the original stone

*Made to a meeting of the Central Veterinary Society, at the Conway Hall, W.C.1, on Thursday, May 2nd, 1935.

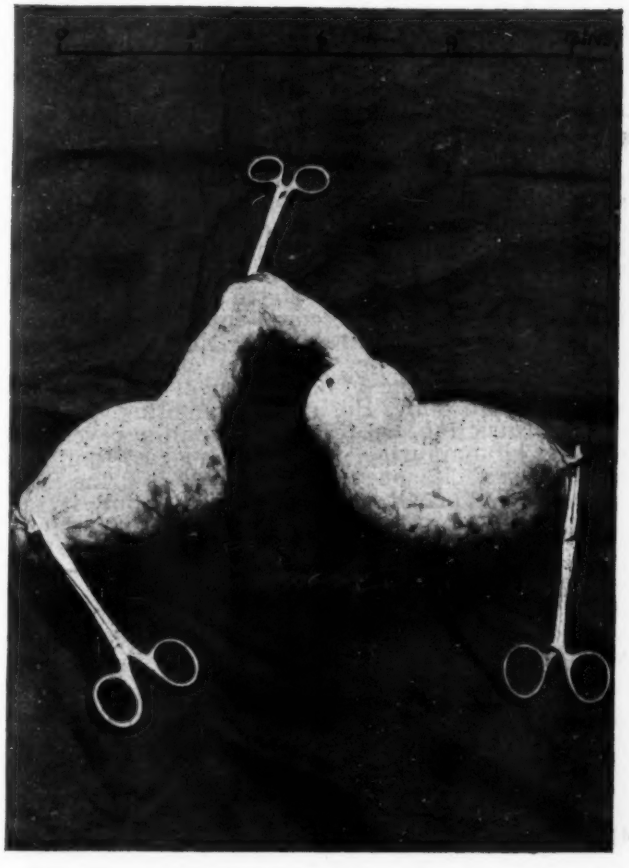
had been removed beautiful healing had taken place, without any suspicion of stricture. I take it that this stone had remained in the stomach at the time of the first operation and was somehow later passed on into the intestine, because after the first operation there was no possibility, owing to the care taken of the dog, that any other stone had been swallowed. At the present time the bitch is doing pretty well; true, she was only operated on two days ago, but I am hopeful that she will go through this second operation as successfully as the first.

Rubber Foreign Body.—The second case is one that has caused me a certain amount of distress. The subject was a Sealyham that was brought in with a history of vomition for two days. Foreign body was suspected. Careful palpation of the abdominal cavity failed to reveal an obstruction of any kind and it was suspected that there might be a foreign body in the stomach. X-ray examination was negative. For three days the dog was watched at the College and did not vomit at all; each day palpation was resorted to to see if we could decide as to the cause of the original trouble, but nothing was found. On the fourth day, however, the bitch again began to vomit violently and looked depressed. A careful examination again revealed nothing. She died during the night and subsequent palpation of the abdominal cavity revealed an obstruction that one feels we ought to have discovered during life and failed to do; I think the foreign body must have passed through the stomach and so to the upper part of the duodenum, and thus was not palpable at that date. The foreign body was one of those things to which I have referred on former occasions—a section of one of those rubber bones, which, as I have often pointed out, is transparent to X-ray. If we had felt any very definite reason for an exploratory laparotomy it would certainly have been made, but in the absence of any discovery on X-ray or on bi-daily palpation one did not feel justified in doing an exploratory laparotomy—I now wish we had done so.

Extirpation of Large Salivary Cyst.—The next specimen I want to exhibit is a salivary cyst, taken from behind the inferior maxillary bone of an Airedale. It had been opened by a practitioner some time ago and it had healed and recurred. It was decided to dissect out the cyst. This was done under nembutal, and the cyst, which as exhibited has become reduced by about one-third of its original size, was taken out. It was a very delicate operation, on account of the numerous vessels in the vicinity. The case is doing well and it is a matter of interest to know that these things may be dissected out—that is probably the only rational method of treatment.

Chronic Metritis in a Cat.—The last case to which I wish to draw your attention consists of the uterus of a small Siamese cat. This cat was brought in with a very distended abdomen; it was very thin and palpation revealed the presence of liquid contents in the abdominal cavity, but I could not satisfy myself whether it was a dropsical condition or a pyometra—which, in my experience, is much less often met with in the cat than in the bitch, whereas dropsy, whether simple or chylous ascites, is more frequently met with in the cat. We, therefore, felt at the time that it would perhaps be unwise to perform an exploratory puncture; there was in our minds the possibility of its being a pyometra, in which case there would have been soiling of the peritoneum and a reduction in the chances of the cat.

The cat was accordingly anæsthetised and the uterus removed; it is by far the largest I have ever seen in a cat; I think perhaps in the bitch one may have seen one or two, in very big bitches, where the distension may have approached that. That was done on the 23rd of last month; that, then, is nine days ago. I have brought the cat with me so that you shall see the cat and compare it with the size of the uterus removed from it. After operation



Uterus of Siamese Cat
Photo. by Mr. Southern.

the cat was weighed and was just over 7 lb. It has put on weight since then and I thought it might be of some interest to see the size and extent of the wound which was necessary to remove such a uterus. It has made a perfect healing by first intention. The weight of the uterus and its contents was just over 3 lb. The operation on that cat was carried out by Mr. Holmes.

. . . . .

Discussion

Major HAMILTON KIRK said that he had listened with a great deal of interest to Professor Wooldridge's clinical cases; the results he had obtained were a very eloquent testimony to the good surgery of the professor and of his colleagues. Professor Wooldridge had opened his remarks by speaking about vomition in the dog. Persistent vomition was always very worrying in any animal and the Fellows might remember that some months ago he recorded a case in *The Veterinary Record* in which, over a period of three months, nothing could be found as to the cause of continuous vomition in a young bull terrier. It had a curious symptom in that it was always sucking its chops and salivating continuously. Eventually he found that there was a pyloric stenosis which was the cause of the trouble. Three weeks ago he had a Sealyham puppy in, with precisely the same symptoms. He secured a second opinion and this gentleman said that he thought that the whole of the trouble was due to tonsillitis. Tonsillitis was certainly present and he treated that. On the same evening as the consultation the dog died and on *post-mortem* he was surprised to find an intense enteritis extending from one end of the alimentary canal to the other. There was no arching of the back, nor abdominal tenderness, and there was nothing in the symptoms to lead one to anticipate enteritis.

Mr. HENRY GRAY observed that in certain cases of persistent vomition in the dog, extending over several months, he had opened them, examined the contents of the abdomen and, finding nothing to account for it, had stitched up the wound, and there had been no more trouble.

Professor J. G. WRIGHT stated that, during the past 48 hours, he had come into contact with a case almost identical with that recounted by Major Kirk. The symptoms were those of acute vomiting; the animal brought up at least a quart each time, the case resembling one of acute obstruction, but urine examination revealed marked albuminuria. He would suggest that, in such cases, if one subjected the urine to an analysis for albumin, they would find it in the majority. Was not Major Kirk, when referring to acute gastro-enteritis, possibly dealing with a terminal congestion of the alimentary canal, which might have been uræmic in origin? The dog's vomiting centre was most susceptible to stimuli from all parts of the body. And vomiting was a symptom of intoxication from many sources.

Major KIRK replied that he did, in both the cases he had recounted, examine the urine for albumin, but the result was negative. There was most intense inflammation from the stomach right to the rectum.

Professor WRIGHT remarked that his view of that was that there was probably a terminal acute congestion of toxic origin. He thought the condition was definitely analogous to shock.

Major F. J. TAYLOR said that he had a very puzzling case of persistent emesis in a Scottish terrier a few weeks ago. It was brought in in the middle of the morning with the history that, when it came in from exercise, it began to vomit. He could see nothing whatever to account for this and he gave it the usual sedatives. These, however, had practically no effect and the dog died. On *post-mortem* he found that the upper portion of the bowel contained leaves of *aconitum napellus* and he attributed that as the cause of the constant vomiting. Running round the garden the dog had nipped the shoots off the young plants.

Miss K. W. SHEDLOCK observed that she was interested to hear Professor Wooldridge say that pyometra was more common in the bitch than in the cat. For her part, she had always found more cases in the cat than in the bitch.

Abstracts

[**Sterility in Dairy Cows.** HINDMARSH, W. L. (1934.) *Austral. Vet. J.* *10.* 162.]

The author introduces this important subject by stating that under domestication, with the improvement of breeds for specific purposes and the maintenance of large numbers of cattle on small areas, the stock breeder has paved the way for many of the breeding troubles that beset dairy cattle to-day. The collection of exact knowledge concerning the physiological effects of breeding for high milk production would throw considerable light on many of our breeding problems.

The subject of sterility is dealt with under two main headings: (*a*) functional; (*b*) pathological. Functional sterility arises as the result of dysfunction of the generative mechanism, when, for instance, there is lack of pituitary secretion or when there is absence or retention of the corpus luteum. There may be cessation of ovarian function as the result of malnutrition or again as the result of overfeeding. Sterility arising from pathological conditions covers a wide field owing to the fact that disease may affect any part of the reproductive system. Temporary sterility, *i.e.*, when several services are required before fertilisation takes place, has been found by the writer to be caused generally by inflammatory conditions of the vagina. In five dairy herds in New South Wales, with a total cattle population of some 220 animals, from 60 to 80 per cent. showed the presence of various forms and grades of vaginal inflammation, and 50 per cent. of these failed to conceive to the first service by the bull. The line of treatment adopted for this condition was to douche the vagina frequently with various antiseptic and astringent solutions, of which zinc sulphate 1 : 200 and dibromin (a proprietary preparation) were found to be most useful. Applying

this treatment to each cow after calving there was a decline in the incidence of vaginitis and a noticeable improvement in the breeding record. A considerable amount of sterility in cattle is due to infections of the cervix and uterus. Whilst in many herds, cases of inflammation of the cervix and uterus are comparatively few, in others the extent of uterine disease is alarming, especially since the resulting sterility is much more obstinate to treatment than that due to disease of the posterior genital tract. Thus in one herd of 93 cattle, 54 showed lesions of cervicitis and metritis. The writer agrees with William's conception of the origin of these conditions, namely, that infection begins at the cervix and proceeds to the internal *os* and later to the uterine body. This infection may take place while the calf is *in utero* and may lead to abortion, which may be unrelated, in so far as its etiology is concerned, to the contagious disease caused by *Br. abortus*. In one herd where eight abortions occurred in a period of twelve months, none of the animals gave a positive reaction to the agglutination test. Of course, many cases of metritis owe their origin to the results of brucella infection, which is often attended by retention of the fœtal membranes followed by rapid secondary bacterial invasion of the uterus.

Regarding treatment of this condition, the author recommends immediate irrigation of the uterus with hypochlorite solution and removal of the cleansing at the third day after calving. Should there be any discharge later, an intrauterine injection of a saturated solution of magnesium sulphate in glycerine will generally be followed by good results. The most chronic cases of cervicitis or metritis are best treated with iodine solutions such as Lugol's solution, 1 per cent. iodine, in liquid paraffin. The author draws attention to the fact that it is essential to distinguish the sero-mucoid exudate of simple leucorrhœa from the purulent discharge of metritis. The former condition may be the result of hypersecretion of the uterine and cervical glands, often due to abnormal persistence of the corpus luteum, after the enucleation of which fertilisation takes place.

S. J. E.

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[I.—Manual of Instruction for Veterinarians engaged in making Physical Examination of Dairy Herds. (1934.) *Cornell Vet.* 24. 220; **II.—Studies on the Transmission of Bovine Mastitis.** Miller, W. T. *Ibid.* p. 230.]

I.—The New York City Board of Health requires an annual examination of all cows producing milk for New York City. Under the State Sanitary Code, health officers who issue permits to distribute milk or cream "shall cause to be made by a licensed veterinarian, approved by the State Commissioner of Health, a physical examination of all cows producing milk to be sold or offered for sale as milk or cream." In order to secure uniformity of work in dairy inspection service and to provide health officials with more definite specifications of cows the milk of which should be excluded from human consumption, the Mastitis Committee of the New York State Veterinary Medical Society has held various demonstrations and conferences with representative veterinarians, Boards of Health, the Department of Agriculture and Markets in this State. As a working guide it has been agreed that cows showing distinct induration of the udder or the presence of flakes and clots in the milk shall be excluded from the production of milk. No decision is placed on the results of the bromthymol-blue test alone, since the milk may become alkaline under normal conditions. Where there is doubt regarding the physical appearance of the milk it is recommended that a sterile sample be incubated at 100°F. for 24 to 48 hours, at the end of which time the milk containing mastitis streptococci shows a layer of whey below the cream. The instructions of veterinarians on methods of prevention of mastitis are: (*a*) the segregation of suspicious cows and milking them last; (*b*) thorough cleansing of the udder, before milking, with chlorine solution (150 to 400 parts per million); (*c*) the avoidance of purchasing cows affected with mastitis.

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II.—Mastitis was produced in one or more quarters of each of three cows by injecting a suspension of *S. agalactiæ* in sterile lactose-saline solution into the teat canal with a blunt small-gauge needle. Quantities of this culture of from one-tenth to 10 c.c. were used. In an animal which received the larger quantity of suspension a prompt systemic reaction occurred followed by the disappearance of the streptococci from the infected quarter. It was not possible to transmit mastitis by means of a milking machine from infected animals to two healthy ones during an exposure period of several weeks.

S. J. E.

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[I.—Post-operative Collapse. Hetzel, H. (1935.) *Berl. tierärztl. Wschr.* 51. 2; **II.—Technique and Indications for the Use of Continuous Intravenous Infusion in Cows.** Szepeshelyi, A. *Ibid.* No. 3.]

I.—Both papers are from Professor Hetzel's Obstetric Clinic at Budapest Veterinary College.

Hetzel, and doubtless every surgeon, has cases which collapse and die a day or two

after a major operation. In order to try and prevent this, Hetzel set about consulting veterinary and medical literature on this subject. He records his findings and summarises the theories which have from time to time been put forward to account for this type of collapse. Recent investigators seem to have solved the problem — notably Dale in England and Holzbach in Germany.

The present theory is as follows: the primary cause is H substance (histamine) which is produced by metabolic action in certain pathological conditions and intoxications. Thus it is formed during septicæmic states, by the poisoning arising in general anæsthesia (chloroform, ether, etc.) and as a result of tissue breakdown following traumatic injury at operation. This histamine is a poison which acts principally on the capillaries of the splanchnic region, damaging the wall and causing dilatation, with the well-known result of congestion of the abdominal viscera and anæmia of the other body parts, including the brain with its vaso-motor centre. The heart suffers secondarily and the pulse becomes small, frequent, weak and irregular. The blood pressure diminishes, respiration is accelerated and shallow, the body surface and limbs become cold and the temperature falls. Peristalsis is in abeyance and the intestine contains much gas. The visible mucosæ are cyanotic or pale, the eyes sunken and the blood picture is changed —there being an anæmia of the peripheral blood, a rise in hæmoglobin due to hæmolysis consequent upon the death of red blood corpuscles and a fall in the leucocyte count.

The *post-mortem* appearance is negative except for the visceral congestion.

Post-operative collapse is now treated successfully by circulatory stimulants as represented by adrenalin, posterior pituitary extract and ephedrin.

Holzbach uses a mixture of adrenalin, tonephin (posterior pituitary) strophantin and ephetonin (ephedrin). Blood transfusion is also a valuable adjunct for use after the above quick-acting drugs.

Hetzel has applied treatment on these lines to all his later cases and has lost none.

II.—Szepeshelyi has developed the continuous intravenous infusion method in a small number of bovine cases (not detailed). He used physiological saline with glucose (4 per cent.) in some cases, administering 6 to 10 litres at the rate of one litre fairly quickly, followed by slow (drop) infusion carried out over a maximum of five days. After experimentation the jugular vein low down near the thorax was chosen as the best site, the vein being first entered by a venesection trocar and then by a soft 10-inch long catheter passed in through the trocar for about half its length (direction towards the heart), the trocar being then withdrawn. The catheter is sutured to the skin at the point of entry, again at its junction with the supply tubing of 5 mm.-thick rubber and the latter is similarly fixed to the neck and shoulder in its course up to the reservoir, hung 6 feet above the animal's croup. A Martin's drop glass was incorporated in the supply tube as a visible control for the dosage.

This work is only of a preliminary nature and no practical results of therapeutic evidence have been given; it shows, however, that the method is technically practicable for cattle.

J. E.

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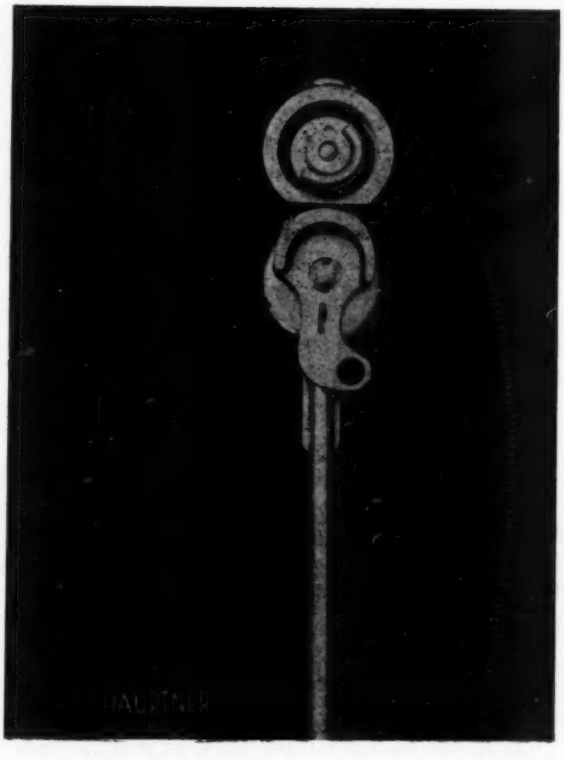
[The Modified Pocket Embryotome and its great Utility in Practice. Bahlke. (1934.) *Tierärztl. Rdsch. 40.* 36. 621-630.]

The author describes Meyer and Schlichting's pocket embryotome, an instrument of original design which measures 13 cms. long and 5·5 cms. wide. On the upper surface is a plate carrying two pulleys provided with housing for a spiral cable, through which the wire saw passes. There is a hook on the under surface which fixes the instrument to the fœtus.

In cases requiring embryotomy the instrument has proved of great service, but difficulty may be experienced in the proper adjustment of the hook, especially if the operator has a short arm, or where the dam has a long pelvis.



Practical experience has suggested certain modifications, whereby the utility of the pocket embryotome has been greatly increased.

Firstly, in order to facilitate fixation of the embryotome a direction rod measuring 80 cms. and fitted with a handle has been added. The hook has also been lowered in position, so that it can be better guarded by the hand. The direction rod is constructed of a copper alloy, which lends to it a flexibility enabling the instrument to adapt itself to the various curved positions of the fœtus. Spirals, saws and holders are manufactured by Messrs. Hauptner. In introducing the pocket embryotome, the operator's left hand is placed over the instrument, the handle is grasped by the right hand, and the instrument is guided forward to the full extent of the arm. Detailed instructions are given for the removal of various parts both in anterior and posterior presentations, and the author recommends that practitioners should acquire experience of its use firstly on the experimental bench. As improved by Bahlke, the pocket embryotome is very reliable and adaptable, and will section from all angles and transversely. Fourteen examples of its use in cattle obstetrics are given, which illustrate how valuable this embryotome can be to cattle practitioners.

W. L. S.

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[**I.—Changes in the Calcium and the Magnesium of the Serum and in the Inorganic Phosphorus of the Blood of Cows at Calving and of the Calf during Early Life.** Allcroft, W. M., and Godden, W.; **II.—Blood Calcium and Magnesium of the Cow in Health and Disease.** Allcroft, W. M., and Green, H. H. (1934.) *Biochem. J.* *28*. 6. 1004-1007; 2220-2228.]

In general, the serum calcium of the normal bovine ranges round 10 mg. and the serum calcium rather over 2 mg. per 100 cc. Figures of 3 to 7 mg. for serum calcium in milk fever and of 15 to 20 mg. in bovine equisetosis represent instances of hypocalcæmia and hypercalcæmia respectively. The most usual variation of serum magnesium is the hypomagnesæmia of "lactation tetany," "grass tetany" or "Hereford disease," which usually occurs during the period of luxuriant growth of spring pasture and in which the serum magnesium becomes extremely low. But diagnosis of lactation tetany by magnesium estimation is complicated by the varied values reported for normal serum magnesium; for example, Sjollema records an average of 1·66 mg. whilst Blakemore and Stewart state that for 70 cows at the Cambridge Institute of Animal Pathology the average is 2·97 mg. with a minimum of 2·4 mg. The difference between the English and the Dutch values is thus 80 per cent. A comprehensive review of the literature bearing on this subject is given.

Changes in the magnesium content of the ration over wide limits exert little effect on the serum magnesium value, although magnesium starvation in rats causes a rapid and progressive fall of magnesium content of the blood as reported by Kruse, McCollum and their co-workers; in such cases, since there is an absence of alkalosis it is concluded that a distinct "magnesium tetany" exists.

In man, the normal and pathological variations of serum magnesium are not at all marked —in sharp contrast to the hypomagnesæmia of lactation tetany in the bovine.

As a result of the present investigations it is reported that the normal range of serum calcium is 8·65 to 11·65 mg. per 100 c.c. and of serum magnesium 1·85 to 3·17 mg. per 100 c.c. for 139 clinically healthy cows. 85 per cent. of the values for calcium lay between 9 and 11, and 90 per cent. of the magnesium values lay between 1·9 and 2·7 mg., 57 per cent. being between 2·1 and 2·5 mg. No marked changes were observed in 35 cases of *Brucella abortus* infection, but in advanced generalised tuberculosis hypomagnesæmia was found. Eighteen cases of lactation tetany gave values of serum magnesium between 0·3 and 1·1 mg. with calcium ranging from 10·8 to 4·7 mg. No correlation could be found between the calcium and magnesium figures, the calcium/magnesium ratio not being the cause of the nervous symptoms associated with the disease. In five cases of milk fever the serum calcium fell between 3·8 and 6·8 mg. which may be associated with high, low or normal magnesium values.

Hypomagnesæmia in the bovine cannot be correlated with low dietary intake of magnesium. It may appear and disappear on the same diet within 48 hours. Its seasonal incidence, however, is commonly associated with change in environmental and dietary (as distinct from nutritional) conditions.

Earlier data on the decrease of serum calcium and blood inorganic phosphorus of cows just before and at calving are confirmed and additional data are presented to show that, whilst the serum magnesium fluctuates rather widely about this period, it tends to rise to a higher level just before, at, or within 24 hours of calving. In general, serum magnesium varies inversely with the serum calcium. Calves at birth and for the first eight weeks of life show rather higher levels of serum calcium and blood inorganic phosphorus than the normals for the dam, whilst the serum magnesium level is lower at birth than the dam's normal but rises to the normal value in about three weeks.

C. G. A.

[**Further Studies on the Lactic Acid, Sugar and Inorganic Phosphorus of the Blood of Ruminants** (a) **following Adrenalectomy and** (b) **after Intravenous Injection of Insulin.** Strand, R., Anderson, W., and Allcroft, W. M. (1934.) *Biochem. J.* *28.* 2. 642-649.]

It has previously been shown that a marked increase occurs in the percentages of lactic acid and sugar in the blood of sheep subjected to excitement or muscular exercise, and the present work was undertaken to find if a similar rise occurred after adrenalectomy. Contradictory reports of the effect of insulin injection on the lactic acid and phosphorus contents of the blood are to be found in the literature, although the general opinion appears to be that insulin hypoglycæmia is attended by a rise in blood lactic acid and a fall in phosphorus. Cori states that for rabbits these changes are not observed after adrenalectomy.

A technique is described for the unilateral and bilateral adrenalectomy of sheep. In some cases cortico-adrenal extract was injected after complete adrenalectomy in an attempt to maintain the animal in good condition. The results are not conclusive though the extracts were potent when tested on adrenalectomised rats.

The present experiments show that both the lactic acid and blood sugar are considerably lower after complete adrenalectomy than in normal or unilaterally adrenalectomised sheep. The blood inorganic phosphorus was considerably raised after complete adrenalectomy. The operation also appears to be responsible for a marked increase in the blood concentration, often making it difficult to obtain samples. The usual symptoms of adrenal insufficiency (refusal of food, muscular weakness, prostration, decrease of body temperature and finally convulsions) were noted just before death. It was found that excitement, such as the barking of a dog or the explosion of fireworks, produced no significant changes in the level of lactic acid, sugar or inorganic phosphorus, in agreement with work on adrenalectomised rats and cats.

Injection of insulin produces hypoglycæmia, but no definite change in blood lactic acid, whilst the fall in inorganic phosphorus is in agreement with work on dogs and rabbits, the maximum fall occurring 45 to 60 minutes after injection, the level then rising again to normal. Hypoglycæmia seems to be more prolonged in ruminants than in simple-stomached anima's. Adrenalectomy increases the sensitivity of sheep to insulin as it does in other animals, but it is also observed that normal ruminants can tolerate much larger doses of insulin without suffering convulsions than can simple-stomached animals. In fact, Peterson and his co-workers were able to lower the blood sugar of cows to 17 mg. per 100 c.c. by insulin without inducing convulsions.

C. G. A.

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[**The Relation of the Colour and the Vitamin A Content of Butter to the Nature of the Ration Fed. I.—Influence of the Ration on the Yellow Colour of the Butter.** Watson, S. J., Bishop, G., and Drummond, J. C.; **II.—The Carotenoid and Vitmin A Content of the Butter.** Gillam, A. E., and Heilbron, I. M. (1934.) *Biochem. J.* *28.* 3. 1076-1085.]

Under the normal condition of winter feeding of cows in this country a noticeable feature is the pale colour of the milk, which is emphasised in the colour of the butter made from it. The yellow colour of the milk fat is positively correlated with carotene and vitamin A content, and accordingly the inclusion in the ration of some foodstuff capable of increasing the yellow colour is of considerable importance. The commonly used oil cakes and cereals are ineffective from this point of view; the necessary carotene may be supplied as carrots, but there are practical difficulties. The present work deals with the effect of the addition of artificially dried grass and of "A.I.V. fodder" to the rations. A.I.V. fodder is produced by a modification of the usual ensilage process, the grass being treated with dilute mineral acid and then stored in containers in which free access of air is prevented. By this means the fermentation is conducted at a much lower temperature than that in ordinary ensilage, with the result that the carotene content of the green crop is preserved.

When 10 or 25 per cent. of the concentrated foodstuffs of the ration was replaced by artificially dried grass, the yellow colour of the butter fat from Shorthorn cows underwent no appreciable change when compared with that from a control group on a normal winter diet. The replacement by 50 per cent. of artificially dried grass, however, causes a marked increase of the yellow colour. The inclusion of A.I.V. fodder raised the yellow colour of the butter fat to a high level comparable with that obtained from cows on the best pasture. There seems to be but little improvement by increasing the amount of A.I.V. fodder from 40 to 70 lb. per head per day. The feeding of A.I.V. fodder increased the xanthophyll and carotene content of the butter about three times that of the control group, whilst the vitamin A content was about doubled. Similar effects were observed for Ayrshire cows.

The difference in the depth of the yellow colour of the butter fat from different breeds is well marked in the case of Shorthorn and Ayrshire cows. On a normal winter ration, deficient in carotene, the yellow colour of butter

fat from Ayrshire cows fell more rapidly and to a considerably lower level than that from Shorthorn cows. There seems to be for each of these breeds a "ceiling" value for the contents of carotene and vitamin A above which the values do not rise even when an excess of carotene rich fodder is fed. The feeding of 40 lb. of I.A.V. fodder in the ration raised the yellow colour of the butter fat of Shorthorn cows to a much higher level than it did for Ayrshire cows although the amount of carotene supplied was the same for both breeds. In spite of the difference in colour, however, it appears that there may be but little difference in the real vitamin A content of the two butters. Samples of goats' butter were found to have a vitamin A content very similar to that of cow's butter, although almost devoid of colour, the carotene content being less than 5 per cent. of that of butter from cows at grass. Thus the colour of goat's butter is not a true indication of its vitamin A or growth-promoting activity compared with that of cow's butter, since in the goat's butter most of the activity is due to the colourless preformed vitamin A whilst in cow's butter the activity is due to the yellow carotene which is the precursor of vitamin A.

C. G. A.

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[The Vitamin D Activity of Butter. I.—Chemical Differentiation of the Antirachitic Factor of Autumn and Winter Butter from Irradiated Ergosterol and the Vitamin D of Cod-liver Oil; II.—The Complex Nature of the Antirachitic Action of Butter; III.—Attempt to Elucidate the Nature of the Labile Factor in Butter Antirachitic for the Rat. Antirachitic Potency of Lard, Olive oil, Egg oil and the Fatty Acids of Butters and Lard. Kon, S. K., and Booth, R. G. *Biochem. J.* 1933. 27. 1302-1309; 1934. 28. 111-120; 121-130.]

Autumn and winter butters on saponification with alcoholic potash lose about 80 per cent. of their antirachitic potency when tested by prophylactic experiments on rats. Summer butter, butter from cows receiving two different levels of irradiated yeast, butter from cows receiving cod-liver oil, and winter butter irradiated by a mercury vapour lamp were also tested. The high level yeast butter and irradiated butter retain practically the whole of their activity in the unsaponifiable fraction, while the others show a more or less marked loss on saponification. In general, the greater the initial antirachitic potency of the butter the greater is the proportion of the activity recoverable in the unsaponifiable residue. As the unsaponifiable residues of irradiated ergosterol (the International Standard of vitamin D) and cod-liver oil, either alone or mixed with butter, retain all their activity, there would appear not to be a specific destructive factor in butter. The antirachitic activity of butter thus seems to be due to two factors, one which is not recoverable in the unsaponifiable fraction, and secondly the ordinary vitamin D, which resists saponification. Exposure to summer conditions, or the feeding of highly active antirachitic substances, such as irradiated yeast or cod-liver oil, or direct irradiation of butter increases the vitamin D factor but not the labile factor.

Similar experiments were carried out with lard, which was shown to have activity similar to that of butter, a home-rendered sample having approximately the same potency as winter butter and two American samples corresponding in activity to summer butter. In this case, also, saponification destroyed part of the activity, the loss being greater for the less potent lard.

The fatty acids formed on saponification of the above-mentioned samples of butter were shown to have a slight but definite antirachitic value towards rats, their effectiveness being roughly proportional to the amount fed and independent of the original activity of the butter from which they were derived. The potency of an autumn butter largely destroyed by saponification was restored almost completely by administration of the non-saponifiable fraction at the same time as the fatty acid fraction was fed with the diet, the two factors separately being only slightly active. Butter incorporated in the diet is less potent than the same amount administered separately.

Although these facts can be explained by the assumption of the existence of a new labile antirachitic factor in butter, the authors prefer to attribute the phenomenon to the antirachitic effect on the rat of the fatty acids as such. This explains the reconstitution of the activity on mixing the unsaponifiable fraction and the derived fatty acids, the constancy of the values for the fatty acids whatever the potency of the original butter, and also the slight activity of vegetable oils. It also accounts for the failure to increase any but the vitamin D fraction of the activity. The fatty acid is thought to exert its effect by influencing the Ca : P metabolism of the rat.

In view of these findings it would appear that, unless the labile factor is antirachitic for species other than the rat, the present methods of assay give values four to five times too high for winter and autumn butters, about twice too high for summer butters and approximately correct for highly potent butters (prepared by irradiation or from cows fed irradiated yeast or cod-liver oil). A true measure of the

vitamin D activity of a butter can be obtained by saponification and feeding the unsaponifiable fraction to rats.

C. G. A.

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[Recent Advances in the Control of Certain Diseases of Sheep. Gordon, W. S. (1934.) *Vet. J. 90.* 11. 439-446.]

A review is given of knowledge of sheep diseases acquired during the past few years.

Braxy and Braxy-like Diseases.—These are diseases of yearling sheep, occurring from October to March, caused by *Cl. septique.* Vaccination by the subcutaneous inoculation of 5 c.c. of a formalinised whole culture, two injections being given at a fortnight's interval, has proved extremely efficacious. Preliminary results suggest that a single injection is also effective. Of 1,314 sheep vaccinated by the double method, four died from braxy. Of 1,265 controls, 106 died from the disease.

Infectious entero-toxæmia, occurring in Britain and W. Australia, and "struck" on the Romney marshes, Kent, are caused by distinct types of *Cl. welchii.* Preliminary research suggests that reliable methods of vaccination are forthcoming.

Lamb dysentery is a disease of lambs due to the absorption of toxin of a type of *Cl. welchii* from the intestine.

Vaccination by the subcutaneous injection of formalinised whole culture of the causal organism three weeks before mating and ten days before lambing is of value. The newly-born lamb absorbs antitoxin from the colostrum during the first four days of life.

Of 10,821 lambs born of vaccinated ewes, 95 died of lamb dysentery. Of 7,242 controls, 939 died from the disease.

Ewes that have been vaccinated twice need be vaccinated only once in succeeding years and then just prior to lambing.

The use of hyperimmune serum within 24 hours of birth has also given good results. Of 1,831 lambs inoculated, nine died, and of 1,889 controls, 349 died of lamb dysentery.

Louping-ill.—Vaccination using a formalinised tissue vaccine prepared from brain and spinal cord of infected sheep has given useful results: of 1,627 vaccinated sheep, 13 developed louping-ill later, whilst of 1,589 controls, 118 developed the disease.

E. W. A.

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[Navel Infection of Lambs associated with Marked Liver Changes. Pallaske, G. (1934.) *Tierärztl. Rdsch. 40.* 41. 706-708.]

A sporadic disease of lambs characterised by joint infection and lameness is described, in which the mortality rate may rise as high as 50 per cent. *Post-mortem,* lambs appear emaciated and anæmic, and may show icterus. Very characteristic lesions are found in the shape of necrotic foci in the liver and inflammation of the navel and umbilical vessels. Pneumonia, arthritis and *tumor splenis* may also be seen. The necrotic foci of the liver are not like abscesses, the necrosis being of a very dry type. Microscopically early lesions show necrobiosis; later, the centre of the nodule consists of nuclear débris, whilst around the periphery lies a ring of Gram positive bodies thought to be bacterial colonies.

An organism has been isolated from these lambs which may be the cause of the condition. It is a Gram-positive diplococcus, thought to be distinct from *Strep. pneumoniæ,* which kills mice in a few days following upon intraperitoneal inoculation.

E. J. P.

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[Swine Influenza: V.—Studies on Contagion. Shope, R. E. (1934.) *J. Exp. Med. 56.* 2. 201-211. (5 refs.)]

Shope here records a change in the properties of *H. influenzæ suis,* culture 451, isolated from Iowa in 1928, and maintained by weekly subculture on agar slopes having a little horse blood at their base. To preserve the virus of swine influenza, he has administered virus and culture to swine by the intranasal route at intervals of six weeks, and has, in addition, occasionally tested out the contact infectivity of the resultant disease. Normally ordinary swine influenza is set up in the contact animals, both the virus and the organism being transferred, but in September, 1931, as the result of contact, there only occurred the mild transient illness characteristic of the disease set up by virus alone, although the intranasal inoculations showed that the organism had not lost its power of co-operating with the virus. That this phenomenon was due solely to some alteration in the culture, and that the virus remained unchanged, was shown by subsequent experiments with a freshly isolated strain of virus and its associated strain of *H. influenzæ suis,*

Carriers of the swine influenza organism, when exposed to swine infected with the mild disease due to the virus alone, contract unusually severe swine influenza. Thus the introduction of a slightly sick animal, infected with the virus alone, to a herd containing a carrier of *H. influenzæ suis,* might result in a severe epizoötic through the carrier taking the infection and passing on both virus and organism.

N. H. H.

[**Tick Paralysis in the Dog: Period elapsing between Attachment of Tick and the Onset of Symptoms.** Clunies Ross, I. (1934.) *Austral. Vet. J. 10.* 5. 182-183.]

It is generally accepted that not less than four days must elapse between the attachment of the adult female ticks (*Ixodes holocyclus*) and the onset of symptoms of tick paralysis in the dog.

Clunies Ross reports details of experiments in which two very young dogs weighing nine and six pounds were each infested with approximately 30 ticks. In the former case slight symptoms were seen after 96 hours, and the ticks were removed, but the dog died later in the same day. In the second experiment the ticks were removed at the end of the third day while the dog was apparently normal but early on the fourth day definite signs of incoordination were seen and the dog died at the end of the fifth day.

It appears, therefore, that under certain circumstances tick paralysis may develop before the end of the fourth day. It is suggested that dogs may be safely kept in areas badly tick infested if a daily search is made for the presence of ticks and this should not take more than two minutes per day even in long-haired dogs.

J. S. S.

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[**Psittacosis or Parrot Fever.** Robertson, W. A. N. (1934.) *Austral. Vet. J. 10.* 6. 217-219.]

Psittacosis was not considered to occur in Australia until Meyer and Eddie, in California, reported in 1934 on some parrakeets received from Sydney. After numerous experiments these workers finally concluded that psittacosis is an endemic disease in Australian parrakeets, but the viruses found were of low virulence. Shortly afterwards the disease was identified in some birds imported into England from Australia.

Dr. F. M. Burnet was deputed to investigate the conditions in Australia, and upon examining 24 birds from South Australia, he recovered a virus from four of them, which proved in each case pathogenic for mice. Experiments with these viruses, and with others subsequently obtained, definitely identify them as psittacosis. They appear to be less virulent for mice than the American and European strains, and strains isolated from different parrot species appear to vary in virulence.

This low virulence factor may account for no human case of the disease having yet been recorded in Australia, despite the number of parrots kept, but now that the existence of the disease has been proved in parrots a closer watch will be kept for human cases.

N. H. H.

N.V.M.A. Divisional Report

CENTRAL VETERINARY SOCIETY

"Clinical" Evening at Conway Hall

The somewhat over-generous provision of clinical fare is so much an error on the right side in the programme of a veterinary gathering that few of those attending the May meeting of the Central Veterinary Society, held on the 2nd of the month at the Conway Hall, W.C., were inclined to cavil at an agenda yielding sufficient material to occupy at least two evenings. Despite the fact that the curtailment of discussion was therefore the inevitable order of the day, the report which follows, and the Clinical Section of this issue of *The Veterinary Record*—to which a considerable portion of this account has been transferred—bear witness to the interest and value of the proceedings.

The Chair was occupied by the President (L. S. Balls, Esq.), and there were also present Mr. J. H. L. Addis, Mr. W. Brown, Lieut.-Colonel T. E. Burridge, Mr. H. E. Bywater (Hon. Secretary), Major W. Denington, Miss C. M. Ford, Mr. C. Formston, Captain J. Fox, Mr. Henry Gray, Major T. Hicks, Messrs. J. W. H. Holmes, L. Hughes, A. J. James, H. D. Jones, H. C. P. King, Herbert King, Major H. Kirk, Professor James Macqueen, Professor James McCunn, Mr. J. W. McIntosh, Mr. C. R. A. Powell, Vety-Colonel G. Rees-Mogg, Mr. G. W. Searles, Miss K. W. Shedlock, Captain R. J. Stow, Major F. J. Taylor, Mr. J. Willett, Professor J. G. Wright and Professor G. H. Wooldridge, together with the following visitors: Dr. T. P. White (of the U.S. Department of Agriculture), Messrs. V. Boyle, B. A. Claxton, Captain B. A. Maguire, Mr. W. J. McGubbin and Mr. A. F. Morgan.

As the minutes of the April meeting had not been published, their consideration was deferred.

Before the business proceeded further, the President extended a hearty welcome to Dr. T. P. White, formerly Assistant Chief of the Division of Tick Eradication and Special Diseases, in the Bureau of Animal Industry, United States Department of Agriculture. The President said that they hoped to have Dr. White frequently with them, as he had been assigned to the post from which Dr. R. W. Tuck was now retiring; thus Dr. White would represent the U.S. Department of Agriculture in official veterinary matters in London; report the presence of diseases in Great Britain of possible danger to the livestock industry of the United States; assist and advise in matters pertaining to shipment of livestock from Great Britain to the United States, including enforcement of restrictions upon hay, feed and bedding

materials; and act in the interests of American exporters of livestock and meats when the health of the former or the wholesomeness of the latter were questioned. Dr. White had been on the staff of the Bureau of Animal Industry for more than 33 years, serving in the various branches of the meat inspection service, the control of animal diseases in the field, and in administrative capacities. The President added that he was sure that he was voicing the welcome of all London veterinarians and the hope of all that Dr. White's stay amongst them would be of the most interesting and enjoyable nature. (Applause.)

Dr. White, in acknowledgment, expressed his appreciation of the welcome accorded him through the President of that important society: he was deeply indebted to the President for the privilege of being with them that evening. He came to England a few weeks ago, a stranger in a strange land, but he felt at home already. (Hear, hear.) He would endeavour to do the best he could in the way of rendering professional services both for his own country and for Great Britain, but he would warn them that many times he would have to call on them for that co-operation which he knew they would be as glad to give as he would be glad to receive. (Applause.)

Professor Wooldridge said that he thought it would be fitting—if they felt as he did in regard to this—if they were to make Dr. White an honorary member of that Society. (Applause.) Dr. White was a shining light in American veterinary fiields, and those of them who were over at the International Veterinary Congress last year owed him a very great deal; he did an enormous amount to make their visit there both useful and interesting in every respect. Dr. White was held in very high esteem indeed in America and they would be doing themselves a great honour in electing him an honorary member of the Society. He had great pleasure in proposing that.

Vety.-Colonel Rees-Mogg said that as he had the pleasure of accepting the hospitality of their friends in America he had very much pleasure in seconding.

The proposition was supported by Mr. McIntosh and carried with acclamation.

The Hon. Secretary now announced the receipt of apologies for inability to attend from Dr. F. Bullock, Captain J. C. Coleman, Lieut.-Colonel W. S. Mulvey, Mr. H. L. Roberts, Captain W. K. Townson and Miss Levie.

Correspondence.—The Hon. Secretary said that he had to report the receipt of two letters from the General Secretary of the N.V.M.A. The first accompanied copies of correspondence that had passed between the Agricultural Research Council and the "National" in connection with investigations into braxy-like diseases of sheep, which correspondence was published in April 13th issue of *The Veterinary Record*. The Association's letter expressed the hope that members of that division would co-operate with the Agricultural Research Council in investigating those diseases. The second letter had reference to the Veterinary Advisory Scheme and was accompanied by a copy of the revised instructions agreed to by the Ministry of Agriculture and approved by the Council of the Association. These revised instructions had been published in *The Veterinary Record* of April 27th.

Obituary.—The President now rose to say that he had a very sad task to perform in announcing the death of one of the oldest members of the profession in Mr. Mark Tailby, who passed away at the great age of 95 years. A wreath was sent on behalf of the President and Fellows of the Central Veterinary Society, who were represented at the interment by Mr. H. W. Griffiths.

On the proposition of Mr. J. Willett, seconded by Professor Wooldridge, it was unanimously agreed that a letter of condolence be sent to the relatives.

Illness of Fellow.—Proceeding, the President said that he had recently heard, with great regret, that a very old friend of theirs, Mr. Thompson, of the Southern Railway, was lying seriously ill, and he proposed, therefore, that their secretary be asked to send a message of sympathy from that Society expressing their earnest hope for his speedy recovery.

Nominations.—The following nominations were made: Miss R. E. Holman "St. Cennys," Dover House Road, Roehampton, S.W.15 (proposer: Miss Shedlock; seconder: Mr. J. W. H. Holmes); Captain V. Boyle, of the Ministry of Agriculture (proposer: Hon. Secretary; seconder: the President); Mr. B. A. Claxton, of the Ministry of Agriculture (proposer: Professor Wooldridge; seconder: the Hon. Secretary).

Election to Fellowship.—Mr. T. J. Maguire, 90, Romford Road, E.15, was unanimously elected, having been nominated by the Hon. Secretary, seconded by the Hon. Treasurer.

President's Medallion.—The President said that he thought that, this being Jubilee year, something should be done to celebrate the event in the annals of the Society. To this end he would be very glad if the Society would accept from him a medallion to be worn by the President in office. The matter had been considered by the Council, who had given the proposal their recommendation.

Major Kirk proposed that the Society accept the President's offer with gratitude, and Colonel Rees-Mogg having seconded, the proposal was

carried with applause. It was further agreed that the President, Treasurer and Secretary, together with Miss Shedlock, Major Kirk and Professor Wooldridge be appointed a committee to consider the matter of the design of the medallion, the College of Heralds to be consulted in the matter.

Summer Meeting.—The President stated that the Council of the Society desired to ascertain the views of the members in regard to the question of holding a summer meeting.

In this connection the Hon. Secretary reported the receipt of a letter from Mr. Geo. N. Gould, jun., of Southampton, with reference to an invitation which had been extended to the Society by the manager of the Southampton Docks, which were the finest in the world, to visit them. The party would be entertained on one of the liners in dock and launches would be placed at their disposal by the Southern Railway.

After discussion, the Secretary was instructed to circularise the Fellows of the Society, and also to write to the Royal Counties, South Eastern, and Southern Counties Divisions, with a view to ascertaining whether a sufficiently large party could be secured to justify the acceptance of this kind offer.

Morbid Specimens and Cases of Interest.—Under this heading the Fellows heard with great interest a series of cases recounted, with exhibits, by Professor Wooldridge. Their presentation was followed by a discussion in which Major Kirk, Mr. Henry Gray, Professor Wright, Major Taylor and Miss Shedlock participated, in the order named. Following this discussion Professor J. G. Wright gave a most interesting account of lambing sickness in ewes, this being the report of an outbreak of disease in lactating ewes in Hyde Park and thought to be due to disturbance of the mineral balance of the blood. (This section of the report of the proceedings is transferred to our Clinical columns.—*Editor.**)

Unfortunately, time did not permit of the discussion of Professor Wright's valuable contribution, in connection with which, however, there was the following brief "passage at arms":—

Mr. Henry Gray said there was one question he would like to ask and that was, if milk fever in cows was due to lack of calcium, how was it that potassium iodide, chinosol, oxygen and air cured it? How did they put back the calcium into the blood?

The Hon. Secretary: "They do not put it back; they prevent it coming out."

Mr. Gray: "How do we know that?" (Laughter.)

* Professor Wright informs us, shortly before going to press, that his report must be withheld from publication for the time being.—*Editor.*]

The meeting now proceeded to the discussion of the following "topics of general interest" on the agenda: (1) Definition of ring-bone; (2) Is grunting an unsoundness?; (3) Hæmatoma of the ear.

DEFINITION OF RING-BONE

Mr. J. W. McIntosh, in opening the discussion of this subject, said:—

Some time ago, I suggested as a basis for discussion confining the term "ring-bone" to "a phalangeal ostitis partially or completely surrounding the pedal, coronary, or fetlock joints, accompanied or not by arthritis." There appears to be much confusion amongst members of the profession as to what constitutes a ring-bone, and although the point may not be very material from some aspects, it would, I think, be well and very desirable if we could agree on some closer working definition and perhaps in this way minimise those conflicts of professional evidence, which are not infrequent and sometimes not very enlightening.

It is, of course, as Dr. Bullock remarked in his very admirable paper of some weeks ago, in cases of examination for soundness that a generally-accepted scientific definition would be of most use.

As matters stand at present it is not unusual to hear all enlargements involving the regions around the fetlock and below it described as ring-bones, and it is with a view to confining the term to something definite and specific that I submit the foregoing definition. The qualifying terms "high" and "low" might still be retained with a view to indicating its position.

Hunting, in 1912, said that he preferred the term "phalangeal ostitis," and, in effect, said that if the word "ring-bone" is to be retained it should be defined as a "bony enlargement accompanied by arthritis." The use of the term "false ring-bone" is inexact and misleading, as also is the more scientific-sounding term "peri-articular ring-bone." There should be no such thing as false or peri-articular ring-bone. The sole qualification of the word ring-bone which we should tolerate is that indicating its position, and with these views of Hunting I agree.

The term ring-bone is used much too loosely and with no very specific meaning, and the result is most confusing, especially in regard to the examination of horses for soundness, particularly those that are required for breeding purposes. I think all will value an expression of opinion from this Society, and I would very much like to hear the view of our old friend Professor Macqueen, than whom I consider that there is no higher authority, by virtue of his experience and his teaching. (Hear, hear.)

Professor James Macqueen said that he did

not object to the definition quoted by Mr. McIntosh, which seemed to him to be a fairly good one, but in practice one had difficulties, and one of the chief difficulties was where to place that isolated exostosis. It was called ankle-bone and other names and although it might not involve an articulation it was there and one could not blame practitioners for calling attention to its existence. One might not call it a ring-bone—although many, he thought, did so—unless it was encroaching upon a joint, and certainly in most cases there was no arthritis.

His view of the isolated exostosis was that it was a harmless defect; at the same time, when one was examining a horse for soundness one could not ignore its existence, otherwise one's report on the horse would not be very helpful to the intending purchaser; he did not see how one could avoid including reference to an isolated exostosis.

With regard to the fetlock, he thought the definition applied very accurately: one had arthritis in all cases of fetlock ring-bone. He must say that, at one part of Mr. McIntosh's remarks there appeared to be a slight inconsistency in that he stated that peri-articular ring-bone should not be included in the definition of ring-bone, whereas, in the definition itself peri-articular ring-bone was included: peri-articular ring-bone which partly or completely surrounded the joint and threatened to invade the articulation, particularly in chronic cases.

In connection with coronary and pedal or low ring-bone, the initial lesion was usually associated with strain of the lateral ligaments which was probably the beginning of most cases of peri-articular ring-bone. He should not like to drop the name peri-articular ring-bone. It was unnecessary in certificate writing, to refer to it as peri-articular ring-bone: it was sufficient to call it ring-bone. Those remarks also applied to low ring-bone, which might take a long time to invade the articulation.

He thought that, as a working definition, that quoted by Mr. McIntosh would do very well, provided the difficulty in regard to isolated exostosis could be removed. The term ring-bone appealed to horse-owners, who fully appreciated its significance. A foal might have enlarged pasterns which appeared to be diseased, yet in the course of nine months or more the pasterns became nearly normal; but occasionally what happened was this; three of the pasterns improved—improved so much that one would not have suspected that the colt or filly had ever been affected with anything like ring-bone—yet owing to some accident the fourth pastern might remain enlarged in that animal and when it was two or three years old there was distinct evidence of ring-bone, ring-bone that had arisen during foalhood or early life.

He did not think that there was any possibility of constructing a definition that would satisfy the majority of the profession. If one saw a horse with a noticeable enlargement of one or more pasterns one could not avoid describing the defects as ring-bone, and the majority of veterinary surgeons who were engaged in horse practice followed the obvious and easy course of certifying that the horse had a ring-bone.

Major T. Hicks observed that although he agreed with the suggestion that the old-standing names of ring-bone, ankle-bone, etc., were very complicated and that it would certainly add to the veterinary surgeon's work and enhance his position if the terms were no longer used in their universal application, he quite agreed with Professor Macqueen that it could not possibly be done. Nevertheless, if it could be agreed upon by the whole profession that the use of the term ring-bone should be abolished, and that the condition should be termed some form of arthritis, he thought they would be doing good work. Only the previous day he went to look at a 'chaser that had gone lame. It was turning its foot in; the heels were getting contracted, caused by a pyramidal ring-bone. He suggested a line of treatment for it, but he would not promise that it would have any lasting effect. One often saw 'chasers with a distinct exostosis at the pastern acquired by injury, but they ultimately became serviceably sound; was one to call that a ring-bone? He said not; it was not an hereditary disease—it might be the result of a split pastern or other injury.

In conclusion Major Hicks said that, as that was his first appearance at a meeting of the Central Veterinary Society, under the presidency of Mr. Balls, he would like to congratulate the president on the honour bestowed upon him, which he was sure had given the greatest satisfaction to all the Fellows. (Applause.)

Professor J. G. Wright suggested that the time was not yet ripe for changing the nomenclature of the condition under discussion. He thought that it was generally accepted these days that the only rational method of naming a pathological condition was from the etiological aspect and, as they knew nothing of the etiology of this condition, they could not formulate a specific name.

There was considerable variation of opinion as to what was the cause of that osteo-arthritic condition which they called ring-bone. It had been held that heredity plays a predisposing part; and that concussion was the exciting factor. These views, however, were by no means proved. Dr. Hare had drawn attention to the similarity of the condition to rheumatoid dis-

ease of man, whilst others had suggested that the disease was toxic in origin, or due to deficiencies either in minerals or vitamins. Sir Arnold Theiler and others were carrying out research into the bone diseases of animals. As simple adventitious enlargements and the exostosis of ring-bone disease frequently occurred in the same positions, how could one accurately differentiate? If only we could classify these forms of disease with some regard to their etiology he felt that we could advance much towards a satisfactory nomenclature.

Mr. W. Perryman observed that it had been said that a satisfactory definition of ring-bone would be "an appreciable bony enlargement affecting the pastern bone, coronary bone, or the pedal bone." These were many cases in which one got a thickening of the skin and where there was a general enlargement of the ligamentous structures surrounding the joints in which one practitioner would say that there was a ring-bone there and another would say there was not. If not could see or feel a bony enlargement he thought one had to stick to the old name ring-bone. He thought that high and low ring-bone were generally fairly distinguishable; low ring-bone was, however, the more difficult to distinguish, and was less calculated to produce agreement between two practitioners that a definite enlargement was present. They had heard the word "peri-articular"; he took it that if one had a low ring-bone and it was peri-articular, any bony enlargement did naturally affect the articulation. If one was sure that there was arthritis there would inevitably be, in the course of time, a bony deposit around it and he thought that in all those cases where there was a thickening round the coronet, with lameness, one was safe in saying low ring-bone, with articular trouble.

As to ankle-bones, if all the bones were enlarged in that region he thought they might say that it was a congenital condition, but if one side was larger than the other then he thought there was room for reasonable doubt; as to saying that it was an exostosis but was not ring-bone, one would not get many clients to believe that. One must say that a horse had a bony enlargement and could give the opinion that it was not likely to do harm. The word ankle-bone was very misleading; there were many horses in which the pastern bones were congenitally enlarged.

Professor Macqueen had mentioned about the foal. He (Mr. Perryman) had seen many young animals very prominent round the coronet which, in the course of time, had not developed ring-bone; the bones became hardened and the tissues were not so prominent as the animal got older.

Mr. Henry Gray wanted to know why they desired to alter their terminology at a time when equine practice had declined; why was it not altered when work on the horse was in full swing and when they had had plenty of experience? For 25 years in the later part of Mr. Hunting's life he was his most intimate friend, and he saw all his specimens, but they did not come up to definition. In his experience the disease started in the peripheral cancellated portion and then extended after a time to the articular. There was an hereditary predisposition to it; a second factor was the method of feeding, and a third was concussion.

Professor G. H. Wooldridge said that he thought they were all agreed that there was a very great difference in the importance to be attached to an exostosis on the shaft of a pastern bone or a coronet bone that was clear of the joint and an exostosis which impinged on the joint and might or might not be associated with arthritis. To his mind, the first condition rather resembled a splint, and they were agreed, he thought, that a splint was a matter of very small importance except in its early stages. He thought an exostosis on the shaft of the pastern bone or bone of the coronet was in the same category, and that it was unfortunate that they should be reduced to calling it by the same name as that much more serious condition which was a constant source of trouble and lameness. He thought that they should agree to restrict the term "ring-bone" to the more serious condition of arthritis, peri-arthritis, or exostosis impinging upon the joints: if they could confine the term ring-bone to those conditions, and the term "exostosis of the pastern" to those cases which did not involve a joint he thought they would be helping the profession very considerably, particularly in cases of legal disputes and cruelty prosecutions.

Mr. J. Willett observed that he was inclined to agree with Professor Wooldridge's suggested limitations for the use of the terms ring-bone and exostosis. One previous speaker had made reference to fractured pastern and had stated that recovery always left an exostosis. Such a finding must, of course, be recorded in a certificate of examination. One very often saw horses with abnormal development of the suffraginis and at first sight it looked as though the animal had ring-bone, but if one could move the joint laterally and always upwards and forwards, with no pain, then no notice was to be taken of it. In his opinion many cases of so-called ring-bone were due to development of the bone.

Mr. McIntosh requested to be allowed to supplement his observations by stating that he was pleased to hear Professor Wooldridge say exactly what he himself would have said with regard to the exostosis around the coronary

and pedal joints: he thought they should be excluded from the definition of ring-bone. He did think that the time had come when some more definite and specific term should be applied to each specific aspect of the condition now included in the name ring-bone. It was an easy matter to say that a horse had ring-bone, but it must not be overlooked that such a finding had great significance in certain circumstances, for no entire and no brood mare could be passed for breeding purposes, by law, if she was suffering from a ring-bone. However, no member of the profession was going to say that an animal with a small swelling clear of a joint was not fit for breeding.

Professor Macqueen had referred to the term "peri-articular ring-bone." That was the term used by the late Mr. Hunting, and it was included in the definition he suggested as a basis for discussion.

As regarded young animals, at one time he had many of these to examine and found many with very prominent ankle-bones which were described as suffering from ring-bone, but the majority of them were not: as time went on they became absolutely sound animals. To apply the term ring-bone loosely, as it was at the present time, was extremely dangerous and was particularly unfair to breeders of animals, who relied upon the veterinary profession to guide them.

The President: "Might I ask if you propose a definition?"

Mr. McIntosh replied that if the feeling of the meeting was that the matter should remain as it was, he was quite satisfied, but he had been asked to open a discussion upon the subject and had complied. If his observations were not acceptable, so far as he was concerned the matter was at an end, but it might be an advantage to the profession if they could restrict the use of the term ring-bone to enlargements involving the joint.

Major Hicks expressed the opinion that it would be a good thing if the old term "ankle-bone" could be abolished. Certainly it was used a good deal by "horsey" people, but it was a very loose term and should be withdrawn from use, at least by the veterinary surgeon.

Professor Wooldridge stated that Major Hick's suggestion in regard to the discontinuance, by members of the profession, of the use of the term "ankle-bone" had his strongest support, because he had long been of the opinion that it was a cloak for ignorance, being employed when the man using it was not quite satisfied whether or not an enlargement could be regarded as a ring-bone.

Mr. Herbert King said that he would like to ask Professor Wooldridge whether he attached no importance to the exostosis now termed ankle-bone. Surely, at some time or other, it had been the result of some inflammatory process. Had he never seen horses go lame from such a condition? If it were analogous to splint, why should not the animal go lame from it?

Professor Wooldridge replied that he would say that he would attach exactly the same degree of importance to an exostosis of the shaft of the coronary or pastern bone as to an exostosis on the metacarpal or metatarsal—no more and no less. His opinion was that it was no more likely to cause lameness than a splint was likely to do so, and a splint would only cause lameness when there were active inflammatory phenomena present, but these phenomena would disappear, leaving behind them a chronic enlargement, which would cause no lameness whatsoever: he thought it could be completely excluded in regard to the workability of the horse in question.

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IS GRUNTING AN UNSOUNDNESS?

The discussion of this subject was opened by Mr. J. Willett in the following terms:—

I am pleased that my letter to *The Veterinary Record* has proved of sufficient interest to induce this Society to put the subject of grunting and its relation to unsoundness on its agenda. I am afraid I have very little to add to what appeared in my letter, but this matter has caused me a considerable amount of thought during the last few years, and therefore the ventilation of opinions in debate may be of assistance to us all.

The methods of testing a horse for grunting are so well known to most of you that they hardly seem worth mentioning, but as some of you, more especially the new graduates, may not have seen much horse practice, I think it well to describe some of them. If you watch a dealer when buying a horse he will put the horse against the wall, catch hold of the bridle on the near side, then give the animal two sharp pokes in the ribs with his stick, then threaten him with a hard blow. The horse naturally shows fear and it is then the grunt is heard. It may be only a sharp catch at the breath, which I deem of little importance, or it may be a hard raucous sound like the bellow of a bull. Hence the common term that a horse is a "bull" indicates that he is a bad grunter. I, personally, do not think it necessary to strike a horse when examining him; for one thing it is likely to give your client, if he is watching, the impression that you are cruel, and on the other hand, I find I can get sufficient response either with a handkerchief or newspaper when used in the same manner as the stick.

Now what is grunting? I take it that it is a noisy exhalation of breath caused by the contraction of the muscles of the diaphragm through fear or excitement, also one can often hear the noise when a horse is going over a jump. A dealer will not knowingly buy an animal that grunts. Why? Because his experience tells him that the horse either is unsound in his wind or eventually will become so. I do not think, at the present, I can usefully add anything more, except to quote my letter, which most of you have read.

[For the purpose of the report of this discussion, we would remind our readers that, in his letter on this subject published in our issue of May 4th (page 547), Mr. Willett stated that it was time the question was definitely settled whether grunting *per se* is an unsoundness, and asked, if it was not an immediate unsoundness, what was the likelihood of an animal so affected becoming unsound? Should an animal always be tested for grunting as part of all examinations for wind? Was a veterinary surgeon negligent if this was not done? Those questions were very important from both a scientific and a legal aspect. One must recognise normal and abnormal grunts in the same way that one distinguished between other respiratory sounds—some had no pathological significance, the vocal chords being normal; others, owing to a partial paralysis of the vocal chords, allowed air to be expelled through the incompletely closed larynx and were accompanied by a particular noise which was indicative of this condition. Another grunt which was quite distinctive was made by a horse after the "roaring" operation.

If no other test could be applied, he thought one would be justified in stating that "the grunt was indicative of unsoundness," or "of an operation on the larynx." When other tests were available then, of course, they should be used, and if satisfied that there was no abnormality in the respiratory noises the horse should be passed. A great many horses and persons grunted when threatened with a stick or sudden movement but were perfectly sound in wind, and probably were not more liable to become unsound than was a more lethargic horse which did not fear the stick and so failed to grunt when feinted.

To condemn such horses without further trial was therefore unfair and incorrect. He thought it could only be looked upon as *one* of the tests for wind, and although it might give valuable help at times, it must not be considered as a conclusive test; also it must be left to the individual examiner to choose this or any method of satisfying himself as to the soundness or otherwise of a horse's wind. —*Editor.*]

Mr. Willett concluded by saying that he personally always grunted a horse—possibly because he started practice with cart horses. He examined a good many horses at a particular yard where a large number of hunters were sold, and he had been told there that he was the only veterinary surgeon examining there who ever grunted a horse. He asked his informant "Don't you ever grunt a horse?" and received the reply "Rather!" (Laughter.)

Professor Macqueen said that, with regard to grunting, the question was "Is grunting an unsoundness?" If it were, he must have committed many errors in his practice because he had never had occasion to reject a horse as unsound from grunting alone; in fact, he had not been in the habit of testing horses for grunting except in a few cases. Under what conditions or in what circumstances did grunting take place? Grunting might be heard when a horse was starting a load; when a horse was rising to a jump or landing after it and upon other occasions, but it was not without importance for the reason that since the introduction of intra-laryngeal mutilation most of the horses subjected to that operation did make a grunting noise, and that implied that the examiner must be particularly careful in testing that horse's wind. A horse might grunt and be a roarer, a whistler, or affected with broken wind: that was one sort of case; so that one had grunting in association with one of those conditions; in another case one had a horse unsound in wind either through whistling, roaring, or broken wind and the horse did not grunt at all, no matter how it was tested. In a third case one found that the horse grunted when tested but had no difficulty in its respiration. In these cases he thought the proper procedure was this: if a horse made a noise—and he thought all horses nowadays should be tested for grunting, because of the frequency of the intra-laryngeal operation—the discovery was usually made when the horse was being tested for wind, and although some maintained that after the operation to which he had referred the horse was sound in wind, he had never yet seen one that remained absolutely sound in wind. If the test was thorough he thought they would find that the horse that had been operated upon still made a noise when galloped; that noise was a to and fro sound, and on testing the horse for grunting by the usual method it made a grunting noise.

There was another thing to think about which, although not specifically included in the question "Is grunting an unsoundness?" was implied therein. Unsound in what? It must be that it was unsound in wind. He had many times seen certificates in which a horse was described as a grunter, but the

writer of the certificate concluded with the statement that he regarded the horse as sound in wind. Grunting was of no importance in a case of that kind.

Take the legal view. Many years ago a distinguished judge in a case of roaring—and it was analogous to a case of grunting—said in effect "I do not go by the noise; I go by the lesion or the disease which provokes the whistling or roaring." Suppose one was in the witness box in a case of grunting; what answer could one give to the question "What is the cause of grunting in a horse that is sound in wind: can you point to any definite lesion?" He would say that a recent investigation, published in part, showed that a grunting horse suffered from degeneration of a laryngeal nerve, but unfortunately for the value of this investigation the horse had not been tested for roaring or whistling, and the probability was that if the horse had been properly tested for wind it would have emitted either a roaring or whistling sound.

He thought one would have to suspend judgment regarding the importance of grunting until an investigation had proved beyond dispute that grunting alone—and that was very important—was associated with a lesion of a laryngeal nerve; when that stage had been reached then he would say that grunting must be considered an unsoundness, and that would be his answer to Mr. Willett's question.

Mr. J. Willett interposed to say that one factor that had induced him to bring that matter forward was the diversity of practice in regard to the acceptance or otherwise of grunters at different repositories. One prominent man in the Midlands would return them as being unsound; others did not do so. It was the big difference in opinion on that subject that had impressed him with the necessity of arriving at an authoritative view of the matter.

Professor Wooldridge thought that one should take very considerable account of the character of the grunt. He thought that if he placed any members present opposite a wall and suddenly and unexpectedly threatened to hit them in the solar plexus, they would jump away and grunt. (Laughter.) But that would not indicate to him that they had any paralysis of any portion of their respiratory apparatus. The same thing might happen in regard to the horse, and in those cases the grunt would be short, sharp and well defined. The grunt of laryngeal paralysis was a long-drawn-out grunt—the type referred to by Professor Macqueen as emitted by a horse that had had its larynx operated upon, when it came over a fence on the other side.

The fact that one sometimes had to say whether one would regard any particular grunt as a grave defect or one of little moment complicated the whole of the position, but for his part he would never be prepared to certify a horse as unsound in wind because he grunted, though if he grunted he would put him to a more severe test; if, after that, he got no sign of roaring he should attach no importance to the fact that the animal had grunted to the stick. The grunt of itself might be of no great importance, but it might arouse suspicion and draw attention to the necessity of conducting a rather more careful examination of the wind—and that was the position in which he should leave grunting. A horse might grunt and not be a roarer or whistler, and conversely a whistler or roarer might not grunt.

Colonel Rees-Mogg enquired if, from their experience, Fellows could tell him whether when a horse grunted it might be found to be unsound in two or three years' time.

Mr. Willett said that that had been his experience. Grunting was the precursor of unsoundness.

Major Hicks, thought that Professor Wooldridge had hit the nail on the head: it was the type of grunt that one got that made one suspicious. If he rode the horse himself and could not detect any noise then he never hesitated to pass the horse sound, but if one got a horse that had a grunt "with a tail to it," as he called it, one regarded that horse as unsound on getting on its back. Any horse could be made to grunt, but if one wanted to make sure that it was a grunt that mattered from the point of view of the animal's wind one should go to the opposite side of the horse from that upon which it was customary to grunt it. Provided that one was accustomed to these different noises, if one's suspicions were aroused by the fact that the horse grunted to the stick or the handkerchief, one could secure confirmation or otherwise by galloping the horse.

He thought it all "boiled down" to one thing: one had to weigh up the character of the grunt and then be more careful in galloping for wind—if there was no sound at the gallop the grunt need not be mentioned.

Professor Wright observed that they had been told that there were differences in the length and breadth of the grunt, but they had not been told just what degree of ferocity they must assume to get the maximum amount of grunt out of a horse. Nasty horse dealers prodded the horse in the ribs with a stick, but nice veterinary surgeons used a newspaper or even a handkerchief. (Laughter.) There was a horse in the College the other day—a positive roarer—and he attempted to grunt it with a medium degree of ferocity, but the horse did not grunt.

Professor Macqueen desired to be afforded the opportunity of replying to Colonel Rees-Mogg, who asked if a horse that grunted was likely to become a roarer or whistler in the course of years. When he entered the profession it was the custom of practitioners, when a horse grunted, to conclude that he was likely to go wrong in his wind in a year or two. That was the opinion held then, just in the same way as the practitioners of those days used to test horses by coughing them, which was a practice that was largely neglected nowadays. In his time there were practitioners who maintained that they could judge by the character of the cough whether a horse was a whistler or a roarer or defective in wind; the practice was largely carried out at repositories.

Mr. Willett had said that a dealer would not buy a grunting horse; that might be so, but dealers very frequently sold them, so they must have got them at some time. (Laughter.)

Mr. Willett: "It depends on the price, Sir."

HÆMATOMA OF THE EAR

The last subject for discussion on the agenda with which there was any time to deal was that of Hæmatoma of the Ear, and its consideration was very greatly curtailed.

Mr. Henry Gray, in opening, observed that it had been alleged that the condition was due to flapping of the ear, but it was much more frequent in the short-eared cat than in the long-eared dog, and was far from rare in the upright, short-eared dog, while in the human subject, who could not flap the ears, it was not infrequent in the lunatic. In the horse hæmatoma was very rare. In the cat the condition was always associated with parasites of the ear; it might affect both sides of the ear and both ears. It might also affect both ears in the dog and both sides.

What was the cause? It was some irritation, but it was not flapping. In the rabbit, hæmatoma could be induced experimentally by the galvanic current being applied to the auricular nerve. As to the treatment, his experience was that this was of the simplest: he disinfected or disinfested the internal ear and he cut out a triangular piece of skin covering the cyst, with the base of the triangle towards the base of the ear and pressed the ear daily to prevent it refilling. In the cat it was a different matter altogether; one might slit open the cyst, but if one did not apply pressure there would always be recurrence and an ultimate wrinkling and drawing down of the ear. For the purpose of applying pressure, he used a thin aluminium appliance with perforations, putting silver wire through the holes.

In the horse, also, hæmatoma was due to infestation of the ear with parasites. He was of opinion that some of the rare cases of epilepsy and so-called staggers were due to internal irritation of the ear. He had seen epilepsy of the horse after median neurectomy; he had observed it in the stable and also in horses out at grass. In the intervals between the attacks the animals looked perfectly well.

He would like some of those present to try to settle the question of the mechanism of hæmatoma, as in all the text books they said "flapping of the ear," yet in cats 90 per cent. of the cases occurred in the short-eared cat.

Professor Wright said that while he agreed with Mr. Gray entirely that irrespective of whether or not flapping or scratching of the ear was the immediate cause of the condition, hæmatoma of the cat's ear was almost entirely due to otic acariasis, that had not been his experience in the dog. Mr. Gray had speculated the opinion that acariasis was common in the ears of the horse. He frequently encountered horses that shook their heads violently, but on no occasion had he been able to demonstrate the presence of acari.

Mr. H. C. P. King observed that his experience was that with the use of the aluminium appliance in treating this condition in the ears of cats, as mentioned by Mr. Gray, one got some degree of puckering.

Professor Wooldridge said that he would not dogmatise as to the cause of hæmatoma of the ears of dogs and cats, but in the majority of cases he was convinced that it was due to physical injury or shaking of the head—one or the other. He failed to see how acari apart from causing flapping of the ears could cause the extravasation of blood that occurred so extensively in cases of hæmatoma, for these acari did not penetrate far into the skin.

With regard to the horse, he had not been able to demonstrate acari in the ears of horses, but a few years ago a very wide investigation was made on horses in Paris, and the investigator was able to demonstrate in 27 per cent. of cases in thousands of horses examined the presence of the *Psoroptes equi*, yet in no area in the bodies of these horses was there any indication of psoroptic mange.

In regard to treatment, he thought that one of the most disappointing things he had ever met with in his life was Mr. Gray's ear clamp for the treatment of hæmatoma of the cat. He must credit Mr. Gray with many useful inventions, but this certainly was not one of them.

Mr. Gray: "The impression I wish to convey is that its efficiency lies in the skill employed in its use."

Professor Wooldridge: "Yes—I must confess to my skill in using it." (Laughter.)

The President having thanked the members for their attendance, the meeting concluded

with the passing of hearty votes of thanks to him for his conduct in the Chair and to those who had contributed to the proceedings of a highly successful evening.

H. E. Bywater, *Hon. Secretary.*

In Parliament

Diseases of Animals Bill in the Lords

In the House of Lords on Tuesday, May 14th, The Earl of Lucan, Captain, Gentleman-at-Arms, on behalf of Earl De La Warr, introduced a Bill "to make provision for the application of the enactments relating to diseases of animals with respect to poultry, to amend these enactments to provide for the regulation, manufacture, sale, and importation of certain therapeutic substances capable of being used for veterinary purposes, to extend Part I of the Ministry of Agriculture and Fisheries Act, 1919, to Scotland, and for purposes connected with the matters aforesaid." The Bill was read a first time.

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The following questions and answers have been recorded in the House of Commons recently:—

Horses (Census)

Sir Gifford Fox asked the Financial Secretary to the War Office for what reason the Army Council recently took a census of horses in this country; whether the reduction which was shown in the numbers still leaves a sufficient reserve of animals for use in the event of any emergency; and, if not, whether he will consider restoring the horse-breeding grants at least to the pre-1931 levels so as to give due encouragement to horse-breeding?

Mr. Hacking: A census of horses is taken periodically in order to watch the future provision of horses for the Army. The reduction shown in the numbers since the census of 1924 still leaves a sufficient number for mobilisation. There is not at present any proposal to increase the grants now made, but the situation is kept under review.

. . . . . .

Public Health (Milk Supplies)

Brigadier-General Clifton Brown asked the Minister of Health whether there are still some counties where producers are unable to qualify for the Milk Board's Grade A scheme owing to the lack of arrangements for veterinary surgeons, inspectors, etc.; if so, what are the counties which do not give facilities for the production of this better quality milk?

Sir H. Young: I am not aware that there are any counties in which milk producers are unable to qualify for admission to the list of accredited producers for the reason suggested by my hon. and gallant Friend. A producer can so qualify by obtaining from the licensing authority a Grade A Milk Producer's licence and for this purpose he may employ any veterinary surgeon who is nominated by the authority with my concurrence. In nearly every county in England and Wales the county council now exercise their powers to grant these licences, but where a county council decline to do this I am prepared to confer the necessary power to grant licences on those district councils who apply for it.

Brigadier-General Brown: Does not my right hon. Friend think there would be greater uniformity in administration if the county council had the doing of these things instead of the district council?

Mr. T. Williams: Does not the right hon. Gentleman think that it is now time that the Government insisted that every county council or responsible authority should be obliged to employ veterinary surgeons so that they can carry out the examinations in connection with the production of this milk?

Sir H. Young: In reply to the supplementary question of my hon. and gallant Friend, I would say greater uniformity, but the desirability of uniformity may be a matter of argument. I would inform the hon. Gentleman on the Opposition Bench that I have to act within the powers given to me by Parliament.

Mr. Williams: Is not the right hon. Gentleman aware that in reply to a deputation following the issue of the report of the Milk Committee he did, on behalf of himself and the Minister of Agriculture, make a definite promise that they would deal with the question of veterinary inspection and so forth?

Sir H. Young: An adequate answer to that question would involve reference to the proceedings in question.

. . . . . .

Accredited Herd Scheme

Brigadier-General Brown asked the Minister of Agriculture how many producers have been enrolled in the accredited herd Grade A scheme of the Milk Board; and how many have qualified for the Government attested herd scheme?

Mr. Elliot: The answer to the first part of the question is 3,300; and, to the second, that 20 herds belonging to 16 producers have been attested.

Brigadier-General Brown: As very few people are using the Government scheme would it not be better to give the money to the Milk Board to encourage the scheme which is going to do well?

Mr. Elliot: As my hon. and gallant Friend knows, the two schemes are not entirely comparable. The Ministry of Agriculture and the Department of Agriculture for Scotland are considering an alteration of the scheme to make it more attractive.

. . . . . .

"Killer" Dogs

Sir G. Fox asked the Minister of Agriculture how many cases of "killer" dogs have been reported to his Department; whether the number of these animals is increasing; and whether any steps can be taken to reduce their number and diminish the losses caused to farmers by their activities?

Mr. Elliot: Cases of death or injury caused by dogs to cattle, sheep or poultry are not required to be reported to the Ministry. No information is therefore available as to the number of cases of "killer" dogs or whether the number is increasing. Regulations have been made by all county authorities in Great Britain (except London) requiring the control of dogs at night; and every dog when in any public place is required to wear a collar bearing the name and address of the owner. In addition, the owner of a dog is liable in damages for injury done to any cattle, sheep or poultry by that dog, and the police are empowered to seize and dispose of any dog found straying on a highway or public place. I have no reason to believe that these regulations are not being effectively enforced. If, however, my hon. Friend can supply me with any particulars indicating that the losses caused to farmers by "killer" dogs are increasing, I shall be happy to consider the matter further.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

May 27th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4 p.m.

May 30th.—Last day for return of Voting Papers R.C.V.S. Election.

May 31st.—Meeting of the Midland Counties' Division, N.V.M.A., at Hereford, 2 p.m.

June 6th.—R.C.V.S. Annual General Meeting, 12 noon; Luncheon, 1.15 p.m.
Annual General Meeting, Victoria Veterinary Benevolent Fund, 12.45 p.m.
Meeting of the Central Division, N.V.M.A., at the Museum, Royal College of Surgeons, 6.30 p.m.

June 12th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Peterborough.

June 13th.—D.V.S.M. Examination begins, Edinburgh.

June 14th.—Fees due for July Examinations, R.C.V.S.

June 14th.—R.A.V.C. Annual Dinner, Hotel Victoria, 8 p.m.

June 26th.—R.C.V.S. Committee Meetings.

June 27th.—R.C.V.S. Committee Meetings.

June 28th.—R.C.V.S. Committee and Council Meetings.

June 30th.—Final date for payment of Annual Fees to R.C.V.S.

July 1st.—R.C.V.S. Diploma Examinations begin.

July 29th—August 2nd: N.V.M.A. Congress at Belfast.

August 24th.—Last date for entries for Jubilee Memorial Prize Examination.

Sept. 24th to 25th.—Jubilee Memorial Prize Examination.

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R.C.V.S. ANNUAL LUNCHEON

We are now able to announce that the following guests are expected at the Luncheon to be held at the Connaught Rooms on Thursday, June 6th, after the Annual General Meeting of the R.C.V.S.:—

H. E. Dale, C.B.,
Sir W. Dalrymple-Champneys, Bart.,
Sir Frederick Gowland Hopkins, M.A., M.B., D.Sc., F.R.S.,
P. W. D. Izzard, Esq.,
Professor W. W. Jameson, M.A., M.D.,
Colonel Sir Percy Laurie, C.B.E., D.S.O.,
Dr. A. S. MacNalty, M.D., F.R.C.P.,
Sir Charles Howell Thomas, K.C.B., K.C.M.G.,
President, National Horse Association.

The toast of the Royal College will be proposed by the Chief Medical Officer of the Ministry of Health, and will be responded to by the President, Mr. G. H. Locke. Professor J. B. Buxton will propose the Guests, and this toast will be responded to by Sir Frederick Gowland Hopkins, President of the Royal Society, and by Sir Charles Howell Thomas, Permanent Secretary of the Ministry of Agriculture and Fisheries.

Applications for tickets should be addressed to the Secretary, R.C.V.S., 10, Red Lion Square, London, W.C.1, accompanied by a remittance of 6s. 6d. In order that sufficient accommodation may be reserved it is earnestly requested that applications should be sent in as soon as possible.

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PERSONAL

Appointments.—M. J. Lyon, M.R.C.V.S., Castlegate, Banff, and Mr. E. Pearce, M.R.C.V.S., Northwich, have been appointed District Veterinary Officers to the Cheshire County Council.

. . . . .

Forthcoming Marriage.—Mr. A. Spreull, jun., and Miss Lorimer Thomson: The engagement is announced between Mr. Andrew Spreull, M.R.C.V.S., and Miss Nina Lorimer Thomson, M.A., only daughter of Mr. and Mrs. J. Lorimer Thomson, 6, Briarwood Terrace, Dundee. Mr. Spreull is the eldest son of Mr. and Mrs. Andrew Spreull, 11, Tay Square, Dundee.

. . . . .

Honour for Son of Mr. William Woods.—Members of the profession will be interested to learn that Colonel William Talbot Woods, D.S.O., M.C., T.D., of Coalbrook, Pontyberem, near Llanelly, son of Mr. William Woods, M.Sc., F.R.C.V.S., of "Brentwood," Wigan, has been gazetted a Deputy Lieutenant of the County of Carmarthen. During the Great War Colonel Woods served with the 5th Battalion of the Manchester Regiment (Wigan Territorials) in Gallipoli and France, and was afterwards on the staff of the 21st Division, under the Command of Sir David Campbell, now Governor of Malta. Until recently he was in command of the 4th Battalion of the Welch Regiment.

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The Free State Ministry of Agriculture has appointed Mr. J. T. Clinton, M.R.C.V.S., Dundalk, as referee under the Irish Horse Breeding Scheme. Mr. Clinton is an admirer of the Shire.

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R.C.V.S. OBITUARY

Neate, Charles Harry Smyth, Park Farm, Laughton, near Lewes, Sussex. Graduated London, July 3rd, 1879; died April 18th, 1935, aged 77 years.

. . . . .

The Late Mr. Walter J. Turtill

An Apology

The Registrar, Royal College of Veterinary Surgeons, writes as follows in connection with the death of Mr. Walter James Turtill and the conveyance to us of information which led us, in our last issue, to publish the name of the deceased as Mr. William Turtill:—

"I regret to find that owing to an oversight

a death certificate received at this office in respect of W. J. Turtill, stated to have been a veterinary surgeon, was taken to refer to Mr. William Turtill. In fact it referred to the death of Mr. Walter James Turtill, who was formerly registered as an 'Existing Practitioner,' but whose name had already been removed from that list. The error has now been discovered and the report of the death of Mr. William Turtill should be cancelled. I very much regret the error, and am sending my apologies direct to Mr. William Turtill."

We desire to associate ourselves with the Registrar's expression of regret and apology.

The late Mr. Walter Turtill, who was 86 years of age, passed away on May 5th at his home, "The Limes," Ashbocking, near Ipswich. Prior to his retirement some years ago, Mr. Turtill was a very active and successful practitioner of the old school, who specialised in the castration of "rig" horses over a wide area. Mr. William Turtill informs us that his brother "picked this up from the renowned Farmer Miles in the 'eighties, in consideration of finding a number of rig horses in my father's and his practice—it being an operation which no-one tackled at that time. I remember the old "Farmer" well and used to drive him round as a boy—this is quite 50 years ago."

In the course of an appreciation of the late Mr. Walter Turtill, a local paper says: "He first went to Ashbocking in 1866 as assistant to Mr. G. Vincent. He lived in Ashbocking for the rest of his life, and with his death the district loses one of its oldest and most respected residents. Mr. Turtill married in 1870, and took over Mr. Vincent's practice in 1876, when he entered into residence at 'The Limes.' He was a churchwarden at Ashbocking, and chairman of the Parish Council, of which he was a member for over 50 years. For many years he farmed Feofee Farm, and the lectures which he gave on farriery, sheep, etc., were very popular in the surrounding districts and of great value to his neighbours.

"In 1920, Mr. Turtill and his wife celebrated their golden wedding. He had then practised in Ashbocking for over 50 years. Mrs. Turtill died in 1923, as the result of injuries received in an accident. In 1924 he remarried and his second wife also predeceased him in 1930. Mr. Turtill was a keen business man and sportsman, taking a great interest in quoits in his younger days. He was also very food of shooting, and in his latter days took a keen interest in bowls and gardening. His kind-hearted and jovial disposition made him popular with all those with whom he came in contact, and his death will be regretted throughout the large area in which he was so well-known."

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THE "LONDON" SUCCESSIONS: FOUR GENERATIONS

Mr. J. L. Buckingham, of Halesworth, Suffolk, writes: "In reference to Messrs. Reeks' and Blakeway's claim of three generations having passed through the R.V.C., Camden Town, as reported in the current issue of *The Veterinary Record,* I should like to place on record the following: My great grandfather, John Buckingham, graduated 1837; my grandfather, Herbert Buckingham, graduated 1868; my uncle, Herbert Buckingham, graduated 1885; my father, John Buckingham, graduated 1898, and I graduated 1930.

Thus, four generations of the Buckingham family have passed, in succession, through the London College."

One Better

From Mr. L. W. Bovett, Bridgwater: "We can claim to beat both the Reeks and the Blakeways as follows:—

1. Daniel Bovett, 1835 (Feb.).
2. E. J. Bovett, 1858 (April).
3. E. W. Bovett, 1890 (Dec.).
4. { E. C. Bovett, 1924 (July).
   { L. W. Bovett, 1928 (Dec.).

In addition to the passing of four generations through the London College, we have the fact that there has been a continuous line of Bovett veterinary surgeons for over a century."

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THE MEDICAL CURRICULUM

In an early issue we propose to review the recently-issued report of the conference of representatives nominated by the Universities of Oxford, Cambridge, and London, the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London on the medical curriculum, of which conference Lord Dawson of Penn was Chairman.

The report embraces the whole field of medical education and provides in remarkably small compass a complete survey of the subject. Amongst the large number of important recommendations made are two of outstanding interest—that the minimum length of the medical curriculum be not extended beyond the present period of five years, and that the course of instruction be divided into three main parts—namely, pre-medical studies, pre-clinical studies, and clinical studies.

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LEAGUE OF HEALTH AND THE "ATTESTED HERDS" SCHEME

The People's League of Health has issued the report of a special meeting of its Original Bovine Tuberculosis Committee and its Veterinary Council called to consider the "Attested Herds" Scheme of the Ministry of Agriculture and Fisheries, to which it gives its support. The report points out, however, that, if it is necessary, in order to protect "attested herds," to allow milk and dairy by-products from unattested premises to be introduced into attested premises only if pasteurised or sterilised, the same doctrine is applicable to the protection of the human community. It is suggested that greater encouragement should be given to milk producers to enter the scheme, and to this end it is advocated that: "the expenses involved in the two prescribed preliminary tuberculin tests should be refunded to applicants who have satisfied the Ministry that adequate efforts have been made to free their herds from tuberculosis and that the bonus of one penny per gallon should be increased."

Whilst the scheme must be in general controlled by the Ministry, it is urged that there should be some local control, and that local veterinary surgeons should be encouraged to provide the producer with advice and assistance; also that disinfection of premises and transport vehicles should be undertaken by expert direction.

Counties or other suitable areas should be established, aided by public funds, to act as reservoirs of tubercle-free herds, from which "attested herds" could be replenished,

VETERINARY RESTRICTIONS: THE POLITICAL FACTOR

In the course of a series of articles, recently published in *The Times* and taken from his book, shortly to be published by the Oxford University Press, in which Mr. Lionel Curtis gives reasons for his conviction that the British Government should consider sympathetically the South African claim for the early transfer to the Union of the native Protectorates, the author states: "In recent years restrictions imposed on Protectorate trade in the Union have increased their difficulties. The Protectorates are included in the Customs Union of South Africa; but the cattle of Swaziland and Bechuanaland have not been admitted for a considerable number of years to the open markets of the Union, and only when over certain weights, to which few of the native cattle attain, are they admitted to the special quarantine market of Johannesburg. When prices collapsed throughout the world after 1929 the Union farmers began to feel the competition of Protectorate products. An outbreak of foot-and-mouth disease provided a reason for excluding Bechuanaland cattle from the markets. The Union Government are even accused of using such restrictions in the Transkei itself in the interests of white farmers. A British official of long experience in India and the Dominions once said in my hearing that no Government can be trusted to enforce veterinary restrictions on purely veterinary grounds. We ourselves, when professed free-traders, were using veterinary restrictions to exclude Canadian cattle in the interest of our own agricultural voters. This unpleasant fact should temper our reprobation."

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net. s. d.	*Post Free.* s. d.
HOUSE OF LORDS PAPERS AND BILLS:—		
(Session 1934-35):—		
(61). Diseases of Animals Bill. (H.L.)	0 3	0 3½
HEALTH, MINISTRY OF:—		
Circulars (33-9999):—		
1473. Milk Pasteurising Plants. To Sanitary Authorities (England and Wales). May 16th, 1935	0 1	0 1½
Public Health and Medical Subjects Reports:—		
77. The Supervision of Milk Pasteurising Plants. May, 1935 (32-195-77) ...	1 3	1 4
STATUTORY RULES AND ORDERS, 1935:—		
417. Army. Census of Horses, 1934. Notice, dated May 3rd, 1935, by the Army Council	0 1	0 1½

MEAT TRADERS AND SALE OF REACTING CATTLE

At a recent meeting of the Executive Council of the National Federation of Meat Traders' Associations a letter was read from the Private Secretary to the Minister of Agriculture acknowledging receipt of the letter from the Federation dated March 25th on the subject of the sale in the open market of cattle which have reacted to the tuberculin test. The letter stated that it would be quite impossible to insist upon the destruction of cattle which react to the test without payment of compensation, and that if such a scheme of compensation were inaugurated not only would the expenditure of public funds involved amount to many millions, but the result would be a great shortage of meat and milk.

The Minister's reply was considered extremely unsatisfactory, and it was resolved "That the matter be again pressed with the Ministry of Agriculture."

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In Scotland during 1934, 9,042 applications for bull licences were received and 7,869 issued. Bulls examined and exported from Scotland during the year numbered 312.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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GRUNTING IN HORSES

To the Editor of The Veterinary Record

Sir,—The subject of "grunting" dealt with in your recent issues has been of much interest.

Experience extending over many years has convinced me that the conclusion that it is not always an indication of unsound wind is correct, and to safeguard ourselves it should always be mentioned in the certificate.

In view of the fact that many who are supposed to know how to "grunt" a horse leave much to be desired in that respect, I have been led to believe that many young horses perfectly sound in their wind began to grunt through fear after having been through the hands of a number of prospective purchasers. It has been my experience to find that, horses that have had a mild attack of pleurisy, pneumonia or have been "grunted" before they have completely recovered from influenza, will grunt at the stick and remain sound in their wind; hence it has been my practice closely to examine the chest in such cases.

One of your correspondents raises the question as to why only the male sex manifests this symptom. True, horses grunt more frequently than mares; in fact, I agree that the latter seldom grunt. Unfortunately I cannot enlighten him on this point, but I attribute it to greater contraction of the abdominal muscles and the diaphragm in the male, caused by instinctive fear of injury to the genital organs when the stick is brought in that direction.

It has been my lot to examine many thousands of horses and mules in countries where it is not customary to "grunt" them during an examination for soundness, and in that experience I cannot recall a single instance in which a "grunter" was not definitely unsound in the wind.

So, Sir, we are no "further forrader," except for emphasising the fact that one's client should be advised of the condition and to adjust the price accordingly.

Thanking you,

I am, Sir,

Faithfully yours,

REG. F. WALL.

Roughdown Rise,
Roughdown,
Boxmoor, Herts.
May 18th, 1935.

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"TUBERCULOSIS OF THE HIP-JOINT IN A CAIRN TERRIER"

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—With reference to an article on the above subject by Mr. J. F. D. Tutt, F.R.C.V.S., of Winchester, published in your issue of April 13th, also to the correspondence on this subject published in your issue of May 4th, we send you a radiograph of one of the many cases as we met them last year at Amsterdam. The subject of this case was an aged fox terrier, ill for one year and four months.

With Mr. A. Noel Pillers, F.R.C.V.S., we suggest, too, that the case recorded by Mr. Tutt might be one of Legge-Calvé-von Perthe's disease.

We are,
Yours faithfully,

P. C. EICHHOLTZ,
A. M. ERNST.
Small Animal Surgeons at Amsterdam.

May 17th, 1935.

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TO THE EDITOR OF THE VETERINARY RECORD

Sir,—Mr. Tutt, in his communication to the issue of *The Veterinary Record* of May 11th, treats my letter in the previous issue with utmost scorn. I was, however, seeking enlightenment. The rarity of this condition in the dog seemed to justify a more complete description of the case than the original article afforded. His subsequent letter, however, has done nothing to help.

With reference to his answers to my questions:

(1) I wonder how many professional gentlemen with any extensive experience of canine practice, can agree with this statement.

(2) This does not, I feel, answer my query.

(3) Mr. Noel Pillers seems to have anticipated me here.

(4) If Mr. Tutt would prefer to send the radiographs to Mr. T. Dalling of Beckenham, the Secretary of the S.E.V.A., I can no doubt see them in due course.

(5) Mr. Tutt answers this with two or three semi-flippant questions to me. He incidentally states that although he used some sort of electrical treatment, it is contra-indicated in tuberculosis.

I am,

Yours faithfully,

E. P. BARRETT.

Eastdown House,
12, Clarendon Road,
Margate.
May 15th, 1935.

[This letter was received too late to permit of its inclusion in our last issue.—*Editor.*]

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WHY "HEIGHT OF APPLICANT"?

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—I am a student who hopes to qualify shortly and shall then be looking for a job. I read every week the notices in the "Situations Vacant" column and cannot understand why in nearly every case the applicant is asked to state his height. It so happens that I am rather below normal height, about 5 ft. 6 inches, and I feel rather worried if that is going to prevent me getting work. I notice that there are no questions asked about weight or size in boots or hats. If one were applying for a job as police constable or a door attendant at a cinema or theatre I see that the height of the applicant is rather important. If the assistant is required to "live in" it might be as well as ask him to state if he has a large appetite. Hitherto I have not felt my lack of inches a handicap except at football matches (when a spectator) or at the recent Jubilee processions. Also, at the N.V.M.A. Congress last year I seem to remember seeing men certainly not taller than I, some of whom at least must have been veterinary practitioners.

I am,
Yours inquiringly,

JOHN SMITH.

Royal (Dick) Veterinary College,
Edinburgh.
May 20th, 1935.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Mr. F. A. Croxon (Arlesey), Dr. H. H. Curson (Pretoria), Mr. Marshall Freeman (Beckenham), Mr. J. McAllan (Belfast), Captain J. Smith (Kenley), and Colonel G. K. Walker (Abingdon).

Report of a meeting of the South Eastern Division, N.V.M.A., from Mr. T. Dalling (Hon. Secretary).